FAIRFIELD UNIVERSITY

BEI SCHOOL OF ENGINEERING

1995-1996

Applications and Information

For applications and additional information, please write or call:

BEI School of Engineering

McAuliffe Hall

Fairfield University

Fairfield, CT 06430-5195

Telephone: BEI Office (203) 254-4147; FAX (203) 259-9372

For registration, fax form to the Registrar's Office (203) 254-4109

BEI SCHOOL OF ENGINEERING OF FAIRFIELD UNIVERSITY

Bachelor of Science Degrees
and
Associate Degrees
in
Electrical Engineering
Information Systems Engineering
Mechanical Engineering

Welcome!

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The Mission of Fairfield University

Fairfield University, founded by the Society of Jesus, is a coeducational institution of higher learning whose primary objectives are to develop the creative intellectual potential of its students and to foster in them ethical and religious values and a sense of social responsibility. Jesuit Education, which began in 1547, is committed today to the service of faith, of which the promotion of justice is an absolute requirement.

Fairfield is Catholic in both tradition and spirit. It celebrates the God-given dignity of every human person. As a Catholic university it welcomes those of all beliefs and traditions who share its concerns for scholarship, justice, truth, and freedom, and it values the diversity which their membership brings to the university community.

Fairfield educates its students through a variety of scholarly and professional disciplines. All of its schools share a liberal and humanistic perspective and a commitment to excellence. Fairfield encourages a respect for all the disciplines — their similarities, their differences, and their interrelationships. In particular, in its undergraduate schools it provides all students with a broadly based general education curriculum with a special emphasis on the traditional humanities as a complement to the more specialized preparation in disciplines and professions provided by the major programs. Fairfield is also committed to the needs of society for liberally educated professionals. It meets the needs of its students to assume positions in this society through its undergraduate and graduate professional schools and programs.

A Fairfield education is a liberal education, characterized by its breadth and depth. It offers opportunities for individual and common reflection, and it provides training in such essential human skills as analysis, synthesis, and communication. The liberally educated person is able to assimilate and organize facts, to evaluate knowledge, to identify issues, to use appropriate methods of reasoning, and to convey conclusions persuasively in written and spoken word. Equally essential to liberal education is the development of the aesthetic dimension of human nature, the power to imagine, to intuit, to create, and to appreciate. In its fullest sense liberal education initiates students at a mature level into their culture, its past, its present, and its future.

Fairfield recognizes that learning is a lifelong process and sees the education which it provides as a foundation upon which its students may continue to build within their chosen areas of scholarly study or professional development. It also seeks to foster in its students a continuing intellectual curiosity and a desire for self-education which will extend to the broad range of areas to which they have been introduced in their studies.

As a community of scholars, Fairfield gladly joins in the broader task of expanding human knowledge and deepening human understanding, and to this end it encourages and supports the scholarly research and artistic production of its faculty and students.

Fairfield has a further obligation to the wider community of which it is a part, to share with its neighbors its resources and its special expertise for the betterment of the community as a whole. Faculty and students are encouraged to participate in the larger community through service and academic activities. But most of all, Fairfield serves the wider community by educating its students to be socially aware and morally responsible persons.

Fairfield University values each of its students as an individual with unique abilities and potentials, and it respects the personal and academic freedom of all its members. At the same time it seeks to develop a greater sense of community within itself, a sense that all of its members belong to and are involved in the University, sharing common goals and a common commitment to truth and justice, and manifesting in their lives the common concern for others which is the obligation of all educated, mature human beings.

The University

Fairfield University, founded in 1942, became the 26th institution of higher learning operated by the Jesuit Order in the United States — the inheritor of a tradition of learning and scholarship that dates back to 1540, when St. Ignatius Loyola founded the Society of Jesus on the principle of active service in the world.

Many Jesuits chose education as their field of service. A basic Jesuit principle, the striving for excellence, led them to create schools that have become renowned for their academic quality. Over the centuries, a Jesuit education has come to mean a high standard of academic and intellectual discipline within Judeo-Christian values.

The majority of Fairfield's faculty are lay people who represent many faiths and many creeds, and students are selected without regard to sex, race, color, marital status, religion, age, national origin or ancestry, disability or handicap. There is one common tie — a commitment to moral and spiritual values. This is the cornerstone of Fairfield's academic philosophy — the search for truth through learning.

Fairfield University comprises the College of Arts and Sciences, the School of Business, the School of Nursing, the Graduate School of Education and Allied Professions, the School of Continuing Education and the BEI School of Engineering.

Located in America's "academic corridor," — that short expanse from New York City to Boston that contains the world's largest concentration of colleges and universities — Fairfield provides access to many cultural, recreational, social and intellectual programs. In addition to its proximity to New York City and all the recreational possibilities available there, the immediate area offers many fine local theaters and cinemas, restaurants, botanical and zoological gardens, and many excellent beaches and boating facilities.

Fairfield's 225-acre campus is among the most beautiful in the country. Created from two large private estates, it retains a gracious, tranquil atmosphere. There are many wooded areas, lawns, gardens and pleasant walks, and, from several vantage points, a broad view of the blue waters of Long Island Sound.

All of the University's buildings are modern and well-suited to the needs of its students. Some of the outstanding buildings are the Bannow Science Center; the Nyselius Library; the Recreational Complex; Donnarumma Hall; Canisius Hall; the Regina A. Quick Center for the Arts, with a 730-seat theater, a smaller experimental theater, and art gallery; and the Egan Chapel of St. Ignatius Loyola.

Accreditation

Fairfield University is fully accredited by the New England Association of Schools and Colleges, which accredits schools and colleges in the six New England States. Accreditation by one of the six regional accrediting associations in the United States indicates that the school or college has been carefully evaluated and found to meet standards agreed upon by qualified educators.

The State of Connecticut Department of Education has approved the programs for teacher certification at the secondary level and graduate programs leading to certification in specialized areas of education in the Graduate School of Education and Allied Professions. In addition, its School and Community Counseling programs have received accreditation from the Council for Accreditation of Counseling and Related Educational Programs (CACREP), a specialized accrediting body recognized by the Council on Recognition of Postsecondary Accreditation (COPA).

The School of Nursing has been accredited by the National League for Nursing and approved by the Connecticut Department of Higher Education and by the Connecticut State Board of Examiners for Nursing.

In October 1980, the State of Connecticut Department of Higher Education granted licensure for the Master of Science in Financial Management program. In February 1983, the State of Connecticut Department of Higher Education granted full accreditation for the Master of Science in Financial Management program.

On August 1, 1994, Bridgeport Engineering Institute, BEI, merged with Fairfield University to form the BEI School of Engineering of Fairfield University. BEI was founded in 1924 and was licensed by the Connecticut Department of Higher Education in 1959 to grant the Associate in Engineering degree, in 1963 to grant the Bachelor of Science degrees in Electrical and Mechanical Engineering; and in 1992 the Bachelor of Science degree in Information Systems Engineering.

In July 1994 the Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology (ABET) granted accreditation to the Bachelor of Science degree programs in Electrical Engineering and Mechanical Engineering.

The University holds memberships in the National Association of Independent Colleges and Universities, American Council for Higher Education, American Assembly of Collegiate Schools of Business, American Association of Colleges for Teacher Education, American Council on Education, American Society for Engineering Education, Association of Jesuit Colleges and Universities, Connecticut Association of Colleges and Universities for Teacher Education, Connecticut Conference of Independent Colleges, Connecticut Council for Higher Education, National Catholic Educational Association, National League for Nursing, and New England Business and Economic Association.

Fairfield University complies with the Family Educational Rights and Privacy Act of 1974 (also known as the Buckley Amendment) which defines the rights and protects the privacy of students with regard to their educational records.

This catalogue contains specific information for the evening engineering programs at Fairfield University. It will be useful as a source of continuing reference and should be saved by the student.

The provisions of this catalogue are not to be regarded as an irrevocable contract between Fairfield University and the student. The University reserves the right to change any provision or any requirement at any time.

General Information

Transcripts

Transcript requests should be made in writing to the University Registrar's Office in Canisius Hall. There is a $4 fee for each copy. Students should indicate the program and dates that they attended. In accordance with the general practices of colleges and universities, official transcripts with the University Seal are sent directly by the University. Requests should be made one week in advance of the date they are needed. Requests are not processed during examination and registration periods.

Refund of Tuition

All requests for tuition refunds must be submitted to the appropriate Dean's office immediately after the withdrawal from class. (Fees are not refundable.) The request must be in writing and all refunds will be made based on the date notice is received or, if mailed, on the postmarked date according to the following schedule. Refunds of tuition charged on either a MasterCard, VISA, or American Express must be applied as a credit to your charge card account.

	Amount Refundable
Before first scheduled class	100%
Before second scheduled class	90%
Before third scheduled class	80%
Before fourth scheduled class	60%
Before fifth scheduled class	40%
Before sixth scheduled class	20%
After sixth scheduled class	0

Refund takes 4-6 weeks to process.

Note: If federal or state financial aid is utilized, the refund amount may be less than the above percentages.

Withdrawal

Students who wish to withdraw from a single course, all courses, or the School must submit a written statement of their intention to the appropriate Dean for his or her approval. Failure to attend class or merely giving notice to an instructor does not constitute an official withdrawal and may result in a penalty grade(s) being recorded for the course(s). In general, course withdrawals are not approved after the sixth scheduled class. Exceptions may be approved by the Dean in extreme cases.

University Course Numbering System

Undergraduate

01-99	Introductory courses
100-199	Intermediate courses without prerequisites
200-299	Intermediate courses with prerequisites
300-399	Advanced courses, normally limited to juniors and seniors and open to graduate students with permission

Graduate

400-499	Graduate courses, open to undergraduate students with permission
500-599	Graduate courses

Financial Aid

There are a number of types of financial aid available. None discriminate on the basis or race, religion, color, sex or national origin and all students are urged to review the list to see which will fill a need; counseling in this area is available through the financial aid office.

Following is an outline of the various programs, all of which require that a student is making satisfactory academic progress, and the application procedure for each.

Need-based programs

These are government-sponsored programs available to students whose educational expenses (determined from standardized student budgets, modified if appropriate) exceed their expected family contribution to an education (determined from one of two federally approved formulae which consider both income and assets).

Pell Grant

This is a federally sponsored program awarding grants (no repayment) of up to $2340 per year depending on need and the number of credits taken. To qualify, a student must be taking at least 6 credits, must not have a previous baccalaureate degree, must be a U.S. citizen or an eligible non-citizen, must not be in arrears on any federal educational loans and must be registered with selective service if required to be. In general, Pell Grants are limited to 5 years of study.

While it will not be posted until later in a term, a firm commitment for Pell grants, *based on a particular course load*, will be made after receipt of a Student Aid Report by the Financial Aid office. These reports will be sent to students by the Department of Education after FAF's or FAFSA's are filed. All Pell grants are applied to a student's tuition account, with any overpayment (resulting from prior tuition payments by the student) being refunded to the student.

To apply, fill out a Financial Aid Form (FAF) for the 95/96 school year or a Free Application for Federal Student Aid (FAFSA) for the 95/96 school year; check question 3 on the form "yes", and submit it to the College Scholarship Service, Princeton, NJ in the envelope provided — *not* to the University. Also fill out a BEI Scholarship and Aid Application (SAA) and send it, together with a copy of your federal tax return — 1994 for the 95/96 school year — to the BEI Office. All forms are available at the Registrar's Office.

Connecticut Independent College Student Grant (CICS)

This is a state sponsored program which can award up to $6,380 per year to students who are Connecticut residents, have no baccalaureate degree and demonstrate need. These awards are also grants and need not be repaid. Formulae for both educational cost and family contribution differ from those used in Pell, so a student may well qualify for one but not the other. Any Pell Grant or employer tuition reimbursement are deducted from "need" prior to determination of CICS eligibility.

CICS grants are normally not determined until the final month of a term, at which time the student is advised of any award. If the student still owes tuition, the amount is retained by the University any excess is sent to the student by check. If additional tuition is due, the student must pay it prior to finals.

To apply, submit an FAF or FAFSA, an SAA and a copy of your federal tax return as outline above.

Stafford Loans (formerly Federal Guaranteed Student Loans)

These are low cost loans made by a bank but guaranteed and underwritten by the federal government, which may be up to $2,625 annually for students with fewer than 67 credits or $4,000 annually for students with 67 or more total credits, to a maximum indebtedness of $17,250. Interest is not charged nor must repayment begin until 6 months after a student graduates, leaves college, or takes fewer than 6 credits per term.

Requirements are generally the same as for Pell Grants, but any employer reimbursement, Pell Grant or CICS Grant must be used to reduce need before a Stafford Loan is approved.

Certification of Stafford loans is also normally withheld until late in a term. When these loans are disbursed, the University will expect any tuition owed to be paid from the proceeds, with any excess being paid to the student.

To apply for a Stafford loan, submit an FAF or FAFSA, SAA and 1040 as for Pell and, also obtain a loan form from your bank or the Financial Aid Offices. Before a loan will be approved, you must also meet with a financial aid advisor who will discuss details and responsibilities of such a loan with you.

Non Need-Base Programs

These programs do not require demonstration of need, although in the case of scholarships, this may be a consideration.

PLUS Loans and Supplemental Loans for Students (SLS)

PLUS loans are for parent borrowers and SLS's are for students. They differ from Stafford Loan's in that (1) no need must be shown, (2) the annual maximum is $4,000 regardless of school year to a total of $20,000, (3) interest is slightly higher than Stafford Loans, and (4) the borrowers will be charged interest within 60 days of the loan — principal repayment is the same as Stafford Loans. Most banks will also permit interest to accumulate and be added to the principal.

Perkin-Elmer Scholarship Awards

Application forms must be obtained from a bank and both an FAF or FAFSA and the BEI-SAS form must be completed. No 1040's are necessary, although a meeting with a financial aid advisor is required. The amount loaned may not exceed a student's cost of education less any amounts possible from Pell, Stafford or CICSG programs. Disbursement practices are similar to those for Stafford loans.

Scholarships

See information on page 20.

Reimbursement by Employer

Many corporations, school systems and hospitals have a tuition reimbursement plan for their employees. Students should check their company policies and procedures which apply to degree studies.

Tax Deductions

Treasury regulation (1.162.5) permits an income tax deduction for educational expenses (registration fees and cost of travel, meals and lodging) undertaken to: (1) maintain or improve skills required in one's employment or other trade or business, or (2) meet express requirements of an employer or a law imposed as a condition to retention of employment job status or rate of compensation.

Veterans

Veterans may apply educational benefits to degree studies pursued at Fairfield University. Veterans should submit their file numbers at the time of registration. The University Registrar's office will complete and submit the certification form.

Library

The Nyselius Library contains more than 262,000 carefully selected bound volumes, the equivalent of 61,000 volumes in microform, and 1,800 journals and newspapers. A media resources department provides convenient use of audio-visual and other non-print materials, and supervises a microcomputer lab. The reference department offers interlibrary loan and on-line and CD-ROM bibliographic search services. The stacks are open to all students and there is study space, primarily at individual carrels, for more than 600 students. For the convenience of the campus community, the library is open more than 104 hours a week except during vacation periods.

Because the library has an automated circulation system, students must obtain barcode labels for their University identification cards at the circulation desk before they can borrow materials.

Campus Ministry

The Campus Ministry Team is composed of four Jesuit priests, a religious sister, a laywoman, and a Protestant minister. The members of the ministry team provide counseling and spiritual direction, foster prayer life, coordinate interfaith and ecumenical religious events, conduct liturgies and retreats, and encourage student-led ministries and participation in community service and international mission opportunities. The ministers are available at any time for students's needs and can be reached at the Pedro Arrupe, S.J. Campus Ministry Center or in their residence hall suites.

Housing

University residence hall facilities on campus are reserved for undergraduates. Off-campus housing for students can be arranged on an individual basis through the coordinator of off-campus housing, Loyola Hall.

Academic Grievance

The purpose of procedures for review of academic grievances is to protect the rights of students, faculty, and the University by providing mechanisms for equitable problem-solving.

A "grievance" is defined as a complaint of unfair treatment for which a specific remedy is sought. It excludes circumstances which may give rise to a complaint for which explicit redress is neither called for nor sought, or for which other structures within the University serve as an agency for resolution.

Academic grievances either relate to procedural appeals or to academic competence appeals.

Procedural appeals are defined as those seeking a remedy where no issue of the quality of the student's work is involved. For example, a student might contend that the professor failed to follow previously announced mechanisms of evaluation.

Academic competence appeals are defined as those seeking a remedy because the evaluation of the quality of a student's work in a course is disputed.

"Remedies" would include but not be limited to awarded grade changes, such as permission to take make-up examinations or to repeat courses without penalty.

The procedures defined here must be initiated within a reasonable period (usually a semester) after the event which is the subject of the grievance.

Informal Procedure

Step one: The student attempts to resolve any academic grievance with the faculty member, Department Chair, or other individual or agency involved. If, following this initial attempt at resolution, the student remains convinced that a grievance exists, she/he advances to step two.

Step two: The student consults the Chair, or other individuals when appropriate, bringing written documentation of the process up to this point. If the student continues to assert that a grievance exists after attempted reconciliation, she/he advances to step three.

Step three: The student presents the grievance to the Dean of the involved school, bringing to this meeting documentation of steps one and two. If the Dean's attempts at mediation prove unsuccessful, the student is informed of the right to initiate formal review procedure.

Formal Procedure

Step one: If the student still believes that the grievance remains unresolved following these informal procedures, she/he initiates the formal review procedure by making a written request for a formal hearing through the Dean to the Academic Vice President. Such a request should define the grievance and be accompanied by documentation of completion of the informal process. It should also be accompanied by the Dean's opinion of the grievance.

Step two: The Academic Vice President determines whether the grievance merits further attention. If not, the student is so informed. If so, the Academic Vice President determines whether it is a procedural or competence appeal. If it relates to a procedural matter, she/he selects a Dean (other than the Dean of the involved school) to chair a Grievance Committee.

If it relates to an academic competence matter, the Academic Vice President requests from the Dean involved the name of two outside experts to serve as a consultant panel in determining the merit of the student's grievance.

Step three: For procedural appeals, the Grievance Committee takes whatever steps are deemed appropriate to render a recommendation for resolving the grievance. The Committee adheres to due process procedures analogous to those in the Faculty Handbook.

For competence appeals, the Academic Vice President contacts the outside panel members and requests that they review the case in relation to its content validity.

Step four: The recommendation from either the Grievance Committee or the panel is forwarded to the Academic Vice President in written form, accompanied, if necessary, by any supporting data that formed the basis of the recommendation.

Step five: The Academic Vice President renders a final and binding judgment, notifying all involved parties. If the grievance involves a dispute over a course grade given by a faculty member, the Academic Vice President is the only University official empowered to change that grade, and then only at the recommendation of the committee or panel.

The Barone Campus Center

The Barone Campus Center is the social focal point for all sectors of the University community. The Center is open weekdays and Fridays from 8 a.m. to midnight; Saturdays and Sundays from 8 a.m. to 11 p.m.

Included in the Barone Campus Center facilities are: the bookstore (open Monday-Friday, 9 a.m.-4:30 p.m., telephone 259-2324), game room, mail room (open Monday-Friday, 9:30 a.m.-3:45 p.m.), ride boards, weekly activities bulletin, and the Stag-Her Inn (Snack Bar open Monday-Friday, 8 a.m.-midnight; Saturday and Sunday, noon-11 p.m.). For more information, call the Barone Campus Center Information Desk from 9 a.m. to 9 p.m., (203) 254-4222, or ext. 4222.

Recreational Complex

The Recreational Complex is a multi-purpose facility with a 25-meter swimming pool; a fieldhouse unit that can be used interchangeably for badminton, volleyball, tennis, basketball and jogging; enclosed courts that can be used for handball and racquetball; two exercise rooms; a multi-purpose room that can be used for modern dance, slimnastics and exercising; two saunas and a whirlpool bath; a sunbathing deck; and locker rooms.

Evening part-time students are eligible to join during each semester they are enrolled upon presentation of a University identification card validated for the current semester. Membership fee information is available at the Recreational Complex. The office is open from 10 a.m. to 5:30 p.m., Monday through Friday. For complete information, call (203) 254-4140, during office hours.

Special Events

A continuous series of special events including exhibitions, lectures, and dramatic and musical programs is scheduled throughout the academic year. These events are open to all members of the University community, and many of them are free. For a complete calendar of events contact the Barone Campus Center, ext. 4222.

Security

The Security Department is responsible for the safety and security of persons and property associated with Fairfield University. The office is open, and security officers are on patrol, 24 hours a day year-round. Violations of University regulations which require immediate attention should be reported to the Security Department.

The Security office is located in Room 2 on the ground floor of Loyola Hall. To reach the department from an outside telephone line, dial 254-4090; from an inside line, dial extension 4090. **In an emergency, dial 254-4090.**

Parking

All vehicles must display a valid parking permit and park properly in the designated area. Parking permits may be obtained at the Security Department, Room 2, Loyola Hall. **A valid University identification card or receipt of registration and a motor vehicle registration must be presented when registering a motor vehicle.**

Unauthorized vehicles in handicapped, fire lane or service vehicle spaces will be towed at the owner's expense. A number of parking spaces have been designated for handicapped persons throughout the campus. Vehicles of handicapped persons displaying a current permit either from the state in which they reside or a University permit may park in these areas. A pamphlet detailing traffic and parking regulations is available at Security.

The BEI School of Engineering Calendar 1995-96

Classes are offered primarily on Monday, Tuesday, Wednesday and Thursday evenings to accommodate those in the program employed full time. A few classes are offered Friday evenings and Saturday mornings.

Fall Semester 1995 (First Semester)

August 31	Convocation for entering students
September 1	Registration deadline (by mail)
September 6	Wednesday classes begin
September 7	Thursday classes begin
September 11	Monday classes begin
September 12	Tuesday classes begin
October 9	Columbus Day, BEI Monday classes continue
October 20	Degree cards due for January graduation
November 22-26	Thanksgiving Recess
December 18	Monday classes end, Final Exams
December 19	Tuesday classes end, Final Exams
December 20	Wednesday classes end, Final Exams
December 21	Thursday classes end, Final Exams

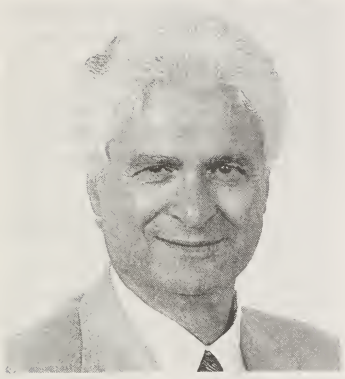
Spring Semester 1996 (Second Semester)

January 12	Registration deadline (by mail)
January 15	Martin Luther King Jr. Day, University holiday
January 16	Tuesday classes begin
January 17	Wednesday classes begin
January 18	Thursday classes begin
January 22	Monday classes begin
February 9	Degree cards due for May graduation
April 2-7	Easter Recess
April 29	Monday classes end
April 30	Tuesday classes end
May 1	Wednesday classes end
May 2	Thursday classes end
May 19	University Commencement

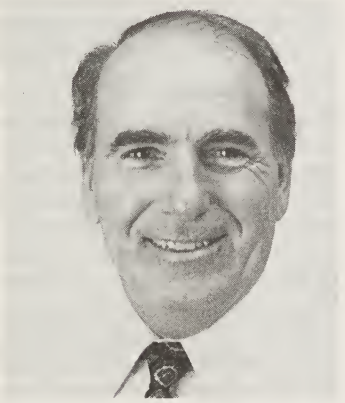
Summer Semester 1996 (Third Semester)

May 9	Convocation for new students
May 20	Classes begin, 7 1/2 week and 10 week sessions
May 27	Memorial Day, no classes
July 2, 3	Final Exams, 7 1/2 week session
July 4	Thursday, Independence Day, no classes
June 12	Degree cards due for August graduation
July 23, 24, 29, August 1	Final Exams, 10 week session

Welcome



E. Hadjimichael, Ph.D.
Acting Dean



Richard G. Weber, Ph.D. P.E.
Associate Dean

Welcome to the BEI School of Engineering of Fairfield University, and congratulations on your decision to continue the development of your engineering career.

You have chosen a school that is devoted to serving the student who is fully employed, with responsibilities to family, community, and profession. BEI provides the opportunity to combine study, experience and professional practice, offering prospects for the best in engineering education. BEI engineering faculty and counselors are professionals active in the technology that energizes Southwest Connecticut's diverse industry.

Keep and use this catalog as your basic guide and reference for your entire career here at BEI. We have designed this catalog to serve several purposes. In addition to admissions, financial, and scholarship information, the catalog contains your Student Handbook with grading practices, standards of student conduct and other important matters. Very important are the engineering degree requirements presented in three versions: a recommended course of study; a listing of required courses; and a flow chart. Study the requirements in planning your program and review your entire program with your counselor at least once a year. Be assured that you will have received fair and realistic transfer credits for the college-level work you have completed elsewhere.

On behalf of the entire BEI family, I wish you success.

Cordially,

E. Hadjimichael

E. Hadjimichael, Ph.D.
Acting Dean

The BEI School of Engineering

The BEI School of Engineering of Fairfield University is the continuation of the Bridgeport Engineering Institute founded in 1924 and in uninterrupted operation as an accredited independent college until its merger into Fairfield University August 1, 1994.

In addition to the mission of Fairfield University, BEI continues those objectives of its predecessor, the Bridgeport Engineering Institute, which are in accord with the aims of the University.

Mission

Fairfield University is committed to the needs of society for liberally educated professionals. Primary objectives of the University are to develop the creative intellectual potential of its students and to foster in them ethical values and a sense of social responsibility.

The BEI School of Engineering of Fairfield University offers the residents of Southwest Connecticut and nearby New York a quality education at the Baccalaureate and Associate levels in Engineering and related technology fields in an evening/weekend format of instruction.

The University has a further obligation to the wider community of which it is a part to share its resources and its special expertise for the betterment of the community as a whole. BEI faculty and students already participate in the larger community as active workers, professionals, many as parents and in service activities. In addition, the University strives to educate its students to be socially aware and morally responsible persons.

In support of this mission and to meet the needs of its students, their employers, and the community at large, the school is committed to:

- Provide the support services needed by non-traditional students who are fully employed individuals.
- Maintain a close working relationship with industry in order to better understand their needs and identify new opportunities to serve them.
- Maintain a close relationship with practitioners of the engineering profession for assistance in program assessment and guidance in program development.
- Continually improve the quality and currency of the instructional program.
- Provide special non credit courses in engineering and related fields, particularly in emerging technologies, to graduate engineers, engineering managers and others who wish to advance their professional development.
- Provide excellence in the teaching staff by employing engineers and scientists who combine academic credentials with the stimuli of the innovative, dynamic environment of industrial professional practice in local industry, and a long time commitment to the school.

The School presents programs leading to the degrees of Bachelor of Science in Mechanical Engineering, Bachelor of Science in Electrical Engineering, Bachelor of Science in Information Systems Engineering, and a Manufacturing Engineering option in Mechanical Engineering. Courses required for the completion of these programs are presented in continuous and integrated sequences. This permits the student to complete the required work and selected elective subjects without loss of time but also at a pace which fits his/her personal academic needs.

Programs are also presented leading to the degree of Associate in Engineering with options for the student's specialization in electrical or mechanical fields.

Class sections are kept small so that instructors will have adequate time to give each student individual attention.

Some Frequently Asked Questions About BEI

Q. How long will it take to earn a B.S. degree?

A. Depending on how many courses you take each semester, and how many credits you transfer from previous college work, it could take less than two years to satisfy just the residency requirement for the B.S. For a student without any previous college work, but who is able to follow the recommended program of evening study, it will take 6 years for the B.S. degree. In a recent graduating class, the average was 6 to 7 years from time of BEI entry to graduation.

Q. Do I have to take time off from work for counseling and resolving matters about tuition and financial aid?

A. No. BEI maintains a full staff of counselors and admissions advisors in the evening from 6:30 PM to 9:00 PM Monday through Thursday. In addition to getting help with your program of study, you can pay your bills and get help applying for financial aid during evening hours. BEI keeps the office open and staffed until 9:00 PM just in case there might be an emergency call for you from home.

Q. I haven't been in a classroom for several years, and I know I'm rusty in Mathematics. Can I get help?

A. Yes. At Admissions, we will give you a Math placement test to find out where you should start. Mathematics achievement is critical for success in an engineering program of study, so BEI provides three courses that are available to bring you from where you are now to the point where you can start Calculus. However, we don't think this is enough, so BEI provides free individual Math tutoring by appointment on selected evenings each week.

Q. I am an older worker with a family and the responsibilities that go with a family. Will I feel out of place at BEI?

A. No. The average age of the BEI student is around 30 and half are married and have children. BEI faculty and staff know full well the sacrifice and commitment that the BEI student is making in order to complete the work for a B.S. degree. Many of the faculty have gone the same route themselves. The faculty and staff are determined that high standards of quality will be maintained in the course work, but at the same time recognize the need for flexibility that will accommodate the fully employed student's individual needs.

Q. I have been working as an engineering technician for several years. I think I may have trouble sitting through a lecture given by someone who has never worked in an engineering office or out in the field. What are the BEI faculty like?

A. Most of the engineering faculty are practicing professionals. Most are senior engineers or engineering managers employed in local industry, and have a great desire to teach, to impart their professional experience and learning to the next generation of engineers. Many faculty have served over 20 years teaching at BEI and at other institutions prior to coming to BEI.

Educational Resources

The BEI School uses classroom and laboratory space at a number of locations.

The BEI main office, Dean and counselors are at McAuliffe Hall. Also at McAuliffe are laboratories for Mechanical Engineering, Manufacturing Engineering, Information Systems Engineering, and CAD. A Tutorial Center and a Reading and Reference Lounge are located at McAuliffe as well as three classrooms. Electrical Engineering, Physics, Chemistry and Computer Laboratories are located at the Bannow Science Center. The majority of BEI classrooms are situated in Xavier Hall.

For locations, refer to the campus map on the inside back cover of this catalogue.

The engineering reference and circulating collection is housed in the University's Nyselius Library. The Library continually cultivates its collection and services to support the School's curriculum as well as the overall intellectual development of its students.

Admissions

Admission Policy

BEI admits students without regard to race, color, sex, age, religion, national origin, or marital status. Women and minorities are particularly encouraged to apply and to prepare for a career in Engineering.

All applications are reviewed and evaluated on an individual basis.

Applicants must satisfy the admissions counselor that they possess the essential qualifications necessary for study in Engineering.

Applicants for admission who have not completed any college work should be graduates of an accredited secondary school, or should have passed the State High School Equivalency examination, or received a General Equivalency Diploma (GED). For acceptance into the Associate in Engineering degree program, the secondary work should include successful completion of 4 units (one unit is one year) in English, and 1 unit in Algebra. For acceptance into the Bachelor of Science degree program, the English requirement is the same, but a minimum of three units of Mathematics, including Algebra. Geometry, and Trigonometry, or equivalent college level Mathematics is required. In addition, a working knowledge of a computer language is required of all B.S. entrants. This can be obtained in secondary school, equivalent college level course at BEI or elsewhere, or can be demonstrated through examination. Preparation in Chemistry and Physics is strongly recommended.

Deficiencies may be satisfied by completing courses in the BEI Preparatory Program. Satisfactory placement as determined by tests in Mathematics and English is required.

Transfer Admission

Students who have completed work at other accredited colleges may apply as transfer students.

An official transcript of all academic work and a catalog with course descriptions must be provided from each institution previously attended, including secondary school.

Credit for college work accomplished at another accredited institution may be granted for equivalent BEI courses. Articulation agreements had been developed with several of the former Connecticut State Technical Colleges. These may serve as a basis for evaluation of technical program courses. In general, credits will be granted on a semester hour basis for work in which the student received a "C" or better.

College transfer students should request that all transcripts be sent to the attention of the Registrar. The transcripts must be received by the institute before granting official transfer credits.

Credit by Examination and by Transcript

Credit for work previously accomplished may be granted when the student demonstrates proficiency by oral or written examination, or both, as required by the department chairperson, or by transcript from an accredited institution. The work that is presented for evaluation must be equivalent in full to one or more BEI courses. The College Level Examination Program (CLEP) in subject examinations is accepted for advanced standing or credit for equivalent BEI courses.

In general, experience has shown that the best interests of the student are not served by granting advanced standing unless there is evidence that the student has a thorough preparation, particularly in Mathematics and Physics.

Advanced Placement

BEI accepts evidence of college level achievement for advanced placement. BEI will accept course work completed with a Final Grade of 3 or higher in courses administered by the Advanced Placement Program of the College Board in the following subject areas:

English, U.S. History, Economics (micro), Government and Politics; Physics C; Calculus AB and BC; Computer Science A and B.

Senior Project demonstration

Admission of International Students

BEI regularly enrolls students from many nations. International students must submit transcripts of all academic work and the results of English Language tests no later than six weeks prior to the term in which they seek admission. International students must pay a fifty ($50) dollar registration fee *(non-refundable)* and 1/2 year tuition before an I 20 will be issued.

Students whose native language is other than English are required to demonstrate proficiency in English by achieving at least a level 108 in the English Language Service (ELS), or by scoring 500 or better in the TOEFL (Test of English as a Foreign Language); or by successfully completing one year of college credit English at an accredited American college; or by successfully passing the ELS placement test upon arrival at BEI.

Students unable to demonstrate proficiency in English will be referred to the English Language Service Inc. center located on the nearby University of New Haven campus.

Special Students

Students who are not candidates for degree programs may enroll for courses providing they are qualified to undertake the courses chosen. Such students are classified as special students

Measles/Rubella

Public Act 89-90 requires that all full-time or matriculated Connecticut college students born after December 31,1956 provide proof of adequate immunization against measles and rubella, including such documentation as a medical record, a physician's statement, or your elementary or secondary school health record. Exemptions will be granted only (1) for medical reasons, confirmed by a physician's statement; (2) if you have had measles and/or rubella and have a physician's or health department certificate so stating/ laboratory evidence demonstrating immunity must be presented; or (3) if your religious beliefs do not allow you to be vaccinated and you sign a statement to that effect. If you claim a religious or medical exemption and there is an outbreak of measles or rubella on campus, you may be excluded from college activities, including classes and exams.

Adequate Immunization: MEASLES: All new and readmit students born after December 31,1956 must provide verification of two (2) doses of measles vaccine—one dose administered after January 1,1969 and a second dose after January 1,1980. If two (2) doses of measles vaccine are required, you must wait at least 30 days before the second dose can be administered. RUBELLA: (German Measles) One dose administered after the student's first birthday is considered adequate immunization.

Tuition and Fees

The schedule of tuition and fees follows:

Application fee (not refundable)	$ 40.00
Registration per semester	20.00
Tuition per credit hour (11 or less)	290.00
(12 or more)	510.00
Change of course	10.00
Laboratory (per lab course)	20.00
Promissory note fee	25.00
Transcript	4.00
Commencement fee (Required of all degree recipients)	90.00
Returned check fee	20.00
Activity Fees (Elective)	
Basic Activity Fee (payable to the Engineers Club)	10.00
Membership in I.E.E.E. (payable to the Engineers Club)	20.00
A.S.M.E. Student Section Membership (payable to Engineers Club)	20.00

The trustees of the University reserve the right to change tuition rates and to make additional charges whenever they believe it to be necessary.

Full payment of tuition and fees or authorization for billing a company must accompany registration. Payments may be made in the form of cash (in-person only), check, money order, MasterCard, VISA or American Express. The minimum charge on all credit card transactions is $50.00. All checks are payable to Fairfield University.

No degree will be conferred and no transcripts will be issued for any student until all financial obligations to the University have been met.

For the tuition refund policy, see page 7.

Deferred Payment

During the Fall and Spring semesters, students deemed eligible may defer payment on their tuition as follows:

For students taking less than six credits — at the time of registration the student pays one-half of the total tuition due plus all fees and signs a promissory note for the remaining tuition balance. The promissory note payment due date varies according to each semester.

For students taking six credits or more — at the time of registration, the student pays one-fourth of the total tuition due plus all fees and signs a promissory note to pay the remaining balance in three consecutive monthly installments. The promissory note payment due dates vary according to the semester.

Failure to honor the terms of the note will prevent future deferred payments and affect future registrations.

Reimbursement by Employer

Many corporations pay their employee's tuition. Students should check with their employers.

If they are eligible for company reimbursement, students must submit, at in-person registration, a letter on company letterhead stating approval of the course registration and the terms of payment. The terms of this letter, upon approval of the Office of the Bursar, will be accepted as a reason for deferring that portion of tuition covered by the reimbursement. Even if covered by reimbursement, all fees (registration, processing, lab or material) are payable at the time of registration. Students will be required to sign a promissory note which requires a $25.00 processing fee. The note states that an outstanding balance must be paid in full prior to registration for future semesters. A guarantee that payment will be made must be secured at the time of registration by either a MasterCard, VISA or American Express credit card. If the company offers less than 100% reimbursement, the student must pay the difference at the time of registration and sign a promissory note for the balance. Letters can only be accepted on a per semester basis. Failure to pay before the next registration period will prevent future deferred payments and affect future registrations.

Bill My Company

A student may submit a written authorization from the student's employer clearly stating that the company will pay all or part of tuition and/or fees to the University directly with no conditions attached. In this case, no promissory note or agreement is required. Any portion of tuition or fees not covered by the authorization is due from the student upon registration.

Financial Aid

Financial Aid is available to all students in need. For Connecticut students, grants are available from the Connecticut Independent College Student Grant program (CICSG) to supplement Federal Aid. A variety of Federal Aid programs are available including Pell Grants and guaranteed student loans (Stafford Loan). To apply for any of these, fill out a Free Application for Federal Student Aid (FAFSA) for 1994-95 **as soon as possible**, and mail it in the envelope provided with the form to the processing center. When you receive a blue Student Aid Report from the Department of Education, take or mail it, along with a complete, signed copy of your 1993 Federal Income Tax Return to the Financial Aid Office, Fairfield University, CT 06430. Be sure to note on the SAR that you are a BEI student. Contact the Director of Financial Aid, James T. Anderson, whose number is 254-4125.

Scholarships

Scholarship Funds are contributed by Corporations, Alumni, Faculty and Friends of BEI. In addition, BEI had set aside a portion of it's funds prior to 1994 to provide scholarships for entering and upperclass students.

Where appropriate, these scholarships carry the name of the Founders and Builders of BEI or names of Corporations which have made annual grants of scholarship funds to BEI.

The BEI School offers annual awards to deserving members of the graduating class of Community Technical Colleges in the Fairfield County area and Westchester Community College. Awards are made upon the recommendations of the faculties of these colleges and interviews with the students.

Scholarships are available to deserving graduates of the region's high schools upon recommendation of the school administration. The Excellence in Mathematics and Science Award qualifies the student for consideration for a scholarship.

Other scholarships provided by sponsors and presented to students upon the recommendation of the Scholarship Committee are as follows:

Theodore Meeker Perkins Memorial Award
Sponsor—Friends and Family

Daniel J. Diasio, Sr. Scholarship
Sponsor—Richard L. Diasio

SAME Scholarship
Sponsor—Society of American Military Engineers

Martha K. Rogers Memorial Scholarship
Sponsor—Bequest

Alexis & Barbara Zaveruha Scholarship
Sponsor—Victor Zaveruha

William F. Hawkins Memorial
Sponsor—Friends and Family

Joseph McNamara Memorial
Sponsor—Friends and Bequest

Perkin Elmer Corp. Scholarship

Pitney Bowes Corp. Scholarship

Supporting Corporations and Organizations

The following corporations and organizations contributed to BEI students fiancial aid:

U.S. Baird Corporation
Baldwin Graphic
Beardsley, Brown & Basset
Bodine Foundation
Bridgeport Hydraulic
Dresser Industries
Eaton Corporation
General Electric
Harvey Hubbell, Inc.
Hollander Foundation
Hughes Aircraft
IBM Corporation
Martin Marrietta
Microphase
Nash Engineering
Olin Corporation
Perkin Elmer
Pitney Bowes
Sikorsky Aircraft
Quantum Chemical
United Technologies
University Publishing Company
Wahlstrom Foundation
Vectron Laboratories

Student Information

(The BEI Student Handbook)

These sections of the catalogue contain the Student Handbook and have been prepared to provide a ready source of information about the School's policy, rules and traditions. Within the Handbook the student should find answers to many of the questions arising in daily relationships at the School.

The administration and faculty suggest that this book be kept for daily use. Matters of importance not included in the text will be conveyed later in classroom announcements or through personal contact with the staff and faculty.

The catalogue of the School, issued every year, serves as a guide on such matters as curriculum, description of courses, tuition payments, and the college calendar for the current school year. It is suggested that students keep a permanent file of applicable catalogs in the event the curriculum and degree requirements change during their stay at the School.

The administration recognizes that the catalog and handbook in no way replace personal contact with the staff and faculty, all of whom are available to answer questions or advise when problems arise.

Student Handbook

Classroom Facilities

The main offices/School are located in McAuliffe Hall. Laboratories and classrooms are located in McAuliffe, Xavier, and Bannow. All students are expected to conduct themselves in such a manner as to respect those properties at all times.

In general, smoking is not permitted within the school buildings.

If students wish to smoke during the recess between classes, they must smoke outside the classroom building and are responsible for preventing litter and fire hazard. Students are requested to be as quiet as possible when passing between classes in order not to interfere with the other occupants of the school.

Attendance

Regular attendance is essential if a student is to pursue successfully a course of study. Even a single absence may seriously affect a student's progress Should illness or other situations arise causing a student to be absent for two consecutive classes in any subject, the student will be dropped from the course. To be reinstated in that course, the student must obtain written permission from the Dean or representative. The student must satisfy the Dean that the absences were unavoidable and standing in that class has not been reduced.

The instructor should be notified in advance if an absence is anticipated. Arrangements can usually be made to get the Coming assignments so homework may be completed and ready to be turned in upon return to class.

Dropping Subjects

If it becomes necessary to drop a subject because of illness, business, or personal reasons, notify the instructor as well as the office, and immediately complete the appropriate form which must be approved by the Dean.

Parking

A parking permit is required to bring a car on campus. Directional signs, stop signs and other traffic instructions are to be strictly observed.

Course Selection

Courses should be chosen in accordance with the latest catalog. Degree requirements are set by the catalog for the year of admission as necessarily modified in later years The students should make certain that all the prerequisites are satisfied for each course selection.

Counselors are available at McAuliffe Hall during regular evening hours. They should be consulted if there are any questions pertaining to curriculum requirements.

Administration

The School administration offices are open during business hours Monday through Friday- 9:00 AM through 4:30 PM and to 9:00 PM while school is in session. Day or evening conferences by appointment may be arranged through the office.

Tutorial Service

Free tutorial services are available at McAuliffe Hall in the various fields of Mathematics. Students desiring such service shall contact the School office to arrange for a tutorial schedule. Tutoring in other courses may be arranged with the Department Chairperson.

Student Convocations

Convocations for the entire student body are held at least once each semester. The purpose of these meetings is to inform the students about changes in the administration or faculty and to explain new developments in curriculum or plans for the future. Student feedback is encouraged.

The first assembly of the year is the convocation for all new students. The Dean and Department Chairmen are introduced and the student is introduced to school policy, rules, and operational procedures.

A dinner dance is arranged annually by the BEI Alumni Association for the enjoyment of the students. The highlight of the evening is the recognition of supporters of BEI.

Student I.D.

Every student is issued an I.D (Identification) card with his/her photo and social security number. All students are requested to carry their I.D. when on campus.

Transcripts

Students requiring official transcripts should advise the Registrar by letter or recognized release form, of the need for a transcript record, and to whom this record should be addressed.

Mutual Responsibilities

The School's major consideration is the welfare of the student It is its responsibility to provide the very best education that it is capable of providing. However, it is the student's responsibility to relate any difficulties experienced to the faculty member or to the administration. Constructive criticism is always accepted and is responded to by appropriate action.

Student Problems

A detailed Grievance Adjustment and Appeals Procedure is in force. All disputes or problems shall be presented in the manner for which provision is made in that procedure. See page 10.

Student Behavior

As engineering students, it is expected that those at the Institute will conduct themselves in an orderly, refined and considerate manner. Violations will be noted in the student's record by attaching a copy of a letter to the student from the Dean of Students citing the infraction. Disciplinary action may be taken as required, including expulsion which will make the student ineligible for the granting of the BEI degree.

It is expected that every person in the BEI higher education community will be treated with dignity and assured security and equality. However, individuals may not exercise personal freedoms in ways that invade or violate the rights of others.

BEI condemns all acts of racism and bigotry and particularly condemns any act of hatred, harassment or violence based upon race, ethnicity, disability, religious or cultural origin, gender or sexual orientation.

Procedure for Grading

Homework

Homework is assigned at nearly every meeting of the class experience has shown that students who do this homework regularly become proficient in the subject being taught. To encourage the homework habit, the School has established a regulation that at least 80% of the homework assigned in a course must be completed before a grade will be given for that course. If this is not done, the student's work will be recorded as incomplete. Other reasons for a grade of "incomplete" are absence from five-week tests, semester examinations, etc.

Uniform Grading

Guidelines have been adopted to promote grading uniformity. The policy is as follows:

Final grades in the technical subjects are based on weighted averages of homework, quizzes, tests and examinations. In general, classroom discussion and recitation are not graded. Experience has shown that students are more disposed to ask questions and engage in sincere discussion when these activities are used solely for acquiring knowledge rather than improving a grade. However, in certain seminars or other classes requiring oral reports, that portion may be graded.

The following guidelines are used in technical departments except as noted below:

General Guideline	Weights
Homework Grade	1/6
Quiz Grade	1/6
Test Grade or Grades	1/3
Examination	1/3

General Guideline With Term Paper	Weights
Homework Grade	1/8
Quiz Grade	1/8
Test Grade or Grades	1/4
Examination	1/4
Term Paper	1/4

Although these general guidelines are applicable to most departments and courses, the nature and content of certain courses make it necessary to establish specific rules. Some of these are listed as follows:

Laboratories	Weights
Report Grades	100%
Lab Final Exam may be used.	

Seminars	Weights
Written Reports	50%
Oral Reports	50%

Mechanical Engineering	Suggested Weights
Homework Grade	10%
Quiz Grades	10%
Test Grades	40%
Examination	40%

Engineering with Design Projects	Suggested Weights
Homework Grade	20%
Quiz Grades	10%
Test Grades	20%
Examination	30%
Design Projects	20%

Some latitude may be granted in grading and grade distributions. However, any exception to the above format must be established prior to the start of the course. Students must be informed of the grading procedure at the first session of each course.

Final Examinations

The final examinations for all courses are two hours or more in length and should cover the work of the entire term.

Grading Criteria

The following system of grading is in use:

Grade Definition	Numerical Equivalency	Quality Points
A Outstanding	93 – 100	4.00
A-	90 – 92	3.67
B+	87 – 89	3.33
B Superior	83 – 86	3.00
B-	80 – 82	2.67
C+	77 – 79	2.33
C Acceptable	73 – 76	2.00
C-	70 – 72	1.67
D Minimal but passing	60 – 69	1.00
F	50 – 59	0
FF	0 – 49	0
W	—	Withdrawal
P	60	*
I	—	Incomplete

The lowest passing grade is 60%. A student receiving a course grade between 50% and 59% will receive the letter grade of F but may request a conditional examination prior to the next time the course is offered for the purpose of removing the F. A student receiving a grade below 50% cannot take a conditional exam and must repeat the course. The conditional examination grade is substituted for the final examination grade and the course grade is recalculated. A recalculated course grade of 60% or better is required in order to remove the F. The grade "P" is used to replace the F and has an equivalent numerical grade of 60 which will be used in the calculation of the average of all courses. The grade "P" will also have an equivalent quality point of 1 (one) to be used in calculating QPR. On the student transcript the symbol "P60" will be used to replace the "F".

If the recalculation of course grade is less than 60% then the "F" grade stands with no alteration.

The student must apply in writing for permission to take the conditional exam. A conditional exam fee is required and the fee receipt must be attached to the request form. The student request must be approved by the course instructor and department chairperson. The approved receipted form must be presented to the instructor responsible for preparing, administering and grading the exam. The instructor will be reimbursed at the current rate.

The conditional exam is preferably taken within the first five weeks of the term following the failure and on a date arranged by the Dean.

Incompletes

If the required course work is not completed, (e.g. Homework, tests, etc.) the grade "I" or "Inc." is recorded. The grade obtained for the work which has been completed, however, should be included in the grading report.

Incomplete course work must be made up before a student is entitled to a final course grade. The homework grade will be based on the total number of assignments.

Students who receive a grade of "F-Inc." will not be permitted to make up the work. Since the course was failed. It must be repeated.

Incompletes may be removed and replaced with the grade earned upon completion of the work. The work must be completed prior to the end of the following semester.

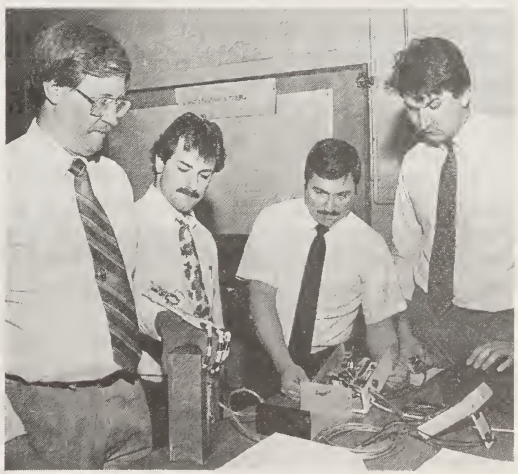
Grade Reports

Reports are issued to the student at the end of each semester.

Student report cards and transcripts are prepared using the letter grade; quality points are applied to determine the quality point ratio.

Audit

Course audit is restricted to courses previously taken at BEI or those for which transfer credit has been granted.



Satisfactory Academic Progress

The measure of a student's academic progress is not only the number and titles of courses that have been completed but also the overall quality of a student's work in these courses. This overall quality is expressed through an unweighted average of a student's grades, either for a term or cumulatively. When courses have been repeated, only the most recent effort will be used to calculate the Cumulative percentage although the earlier attempts will remain on a student's record and transcript.

While exceptions may be made through written application to the Dean, the following minimum Cumulative averages should be met for a student to be considered to be making satisfactory academic progress:

Associate Degree

Credits *	0–29	30–59	over 59
Average (overall)†	1.8	1.9	2.0

Baccalaureate Degree

Credits *	0–34	35–68	69–102	over 102
Average (overall)†	1.8	1.9	2.0	2.0
Average (major)†	1.8	1.9	2.0	2.0

* Credits include those earned at BEI, transferred from another college, or obtained by examination.

† Cumulative averages are calculated based on BEI courses only.

Probation, Dismissal and Reinstatement

Students whose cumulative averages are below the minimum satisfactory levels indicated above will be automatically placed on probation, a warning that a student's work must improve if he or she is to continue toward a degree. A third consecutive probation will be grounds for dismissal although a student may appeal this action in writing to the Dean.

Students who have been dismissed may be considered for readmission through written request to the Dean. Each such request will be judged on its own merits, considering such factors as reason for earlier unsatisfactory progress, time lapse, changes in a student's family or job, and so forth.

Degree Requirements

Consult the specific requirements for the Bachelor or Associate Degrees elsewhere in the catalogue.

Residency Requirement

1. Bachelor Degree:
The minimum residency requirement for the Bachelor Degree is 30 semester hours which shall include a minimum of 24 semester hours of Engineering Science or Design core courses, Laboratories and Seminars. A minimum of 15 semester hours must be in the Engineering major. Exceptions to these conditions can be made only by written approval of the appropriate Department Chair. The Department Chair shall provide a listing of applicable courses to the Dean for use by the counselors

2. Associate Degree:
The minimum residency requirement for the Associate Degree is 24 semester hours which shall include a minimum of 14 semester hours of Engineering Science or Design core courses, Laboratories and Seminars. A minimum of 9 semester hours must be in the Engineering major. Exceptions to these conditions can be made only by written approval of the appropriate Department Chair. The Department Chair shall provide a listing of applicable courses to the Dean for use by the counselors.

Time to Complete Degree

The ideal BEI Baccalaureate program without other college work requires six years of study. It is anticipated that most students should be able to complete the program within a required maximum of 10 years. Individuals failing to meet this requirement may petition the Dean for an extension. Approval of the Department Chair is required.

Dean's List

A Dean's List is compiled and issued after the completion of each semester. Students carrying two or more subjects who have attained a QPR of 3.5 or better are qualified for the Dean's List.

Graduation Policy

A graduation application is REQUIRED by April 15th of the year in which you expect to graduate. Graduation is NOT automatic! The final responsibility for meeting program requirements rests with the student.

Students are strongly encouraged to see a counselor to verify eligibility prior to the start of their last semester.

The basic process is given below:

1.) The Counseling Office will evaluate a students' transcript at any time and will indicate the requirements which still need to be met. (It is recommended that students request an initial transcript evaluation when 30 credits have been earned. This should be done prior to paying the non-refundable graduation fee.)

2.) A candidate for graduation will be evaluated under the conditions of the most appropriate catalog, as follows: The catalog used will be that under which the candidate first enrolled except as noted in the following: (1) If the candidate was re-admitted to the college after an absence of three consecutive semesters, the catalog used shall be that under which the candidate was re-admitted.(2) When the candidate changes program during attendance, the catalog used shall be that which was in force at the time of the last change in program. (3) If there has been a change in General Education requirements of the program, the candidate must complete these requirements prior to graduation.

Special Diploma

A unique feature of the commencement at BEI is the recognition of those who have given loyal support to the student. A special diploma is awarded to each graduate's spouse, parent or friend as requested by the student.

Leave of Absence

Students may take up to one year (3 consecutive semesters) leave of absence with prior approval of the Department Chair and the Dean. Absence may be an acceptable reason for extension unless:

1. The student extends absence beyond one year or fails to obtain prior approval before taking a leave of absence in excess of one term. Such a student is treated as a re-entry.

2. A re-entry student's record will be reviewed and a new curriculum schedule planned based upon the program at the time of re-entry. Past BEI courses, as well as transfer credits, will be reviewed and applied to the re-entry program. Courses completed more than five years before re-entry will be reviewed for course content to assure that it is current and satisfies the need for subsequent courses for which they are a prerequisite.

Who's Who in American Colleges and Universities

Students are selected for Who's Who in American Colleges and Universities based on their grade average (QPR) and personal achievement in life interest (i.e., community activity). In addition to this honor of recognition, the student's name and achievements are published in that year of Who's Who in American Colleges and Universities.

The BEI Engineering Club

This is a club run by the students for the students in the interests of promoting professionalism. The club sponsors tours, seminars, and various other student activities.

For various functions and programs, the Club requires an activity fee. The fee covers associate membership in the professional society (A.S M E or I.E.E E) In addition, the fee will cover participation in school functions in whole or part depending on cost. The fee may also go toward the procurement of various equipment and materials deemed beneficial to the student body.

A schedule of Club events will be posted at the beginning of the school year. All questions regarding Club operation should be directed to the BEI office.

Student Council

The BEI Student Council was formed in the Fall of 1986 for the purpose of representing the students' interests in meetings with the BEI Administration, as well as communicating the plans and goals of the Administration to the students. Elections are held each fall during the first student assembly to fill any positions left open for that school year. There is, ideally, at least one student to represent each major (electrical, mechanical, information systems).

Students interested in becoming actively involved in this organization should notify the Dean prior to the first student assembly of the school year.

BEI Alumni Association

The BEI Alumni Association is composed of graduates of the School. Social and educational meetings are held regularly. At the Annual Meeting, the graduating class of the year is formally inducted into membership in the Association. The Association makes scholarships available for upperclass BEI students.

School Tradition

School Song (Alma Mater)

Like other schools, BEI has an Alma Mater. The tradition of service and effort it recalls to both student and alumni make it a fitting part of our commencement and other special convocations.

ALMA MATER

When engineers are called to build this Country's wealth and might.
The many ones from BEI strive for that future bright
On land and sea, in air and space, our Alma Mater's hand
Has led her own glorious deeds that fill this noble Land.
A legacy of toil was left by those who went before
Forever those of strength and faith shall enter through thy door
Oh, Alma Mater, may it be that ever we shall sing
Your songs of praise and loyalty and honors to you bring
Men of true vision gave to us this college quite unique,
Where those determined to succeed now reach the goals they seek
Pray, Alma Mater, ever stand to serve where'er you can
A tribute to their leadership and to their faith in man.

Curriculum Counselors

Counseling

The School faculty, curriculum counselors, and administrative staff are available for counseling, guidance, and assistance during the hours of 6:30 to 9:00 PM. on regular school evenings. Consult the posted listings at each office to determine when specific staff personnel are scheduled to be on duty.

If a student wishes to discuss any matter regarding his or her records, schedule, or standing, that student must request an appointment at the school office on the preceding school night, or call the main office before noon of the day that the interview is desired This will allow the office personnel sufficient time to withdraw the student's records from the main office files. Such discussions without adequate records are generally difficult and are usually not productive.

Students are encouraged to have their transcript records reviewed annually in order to keep abreast of their progress. It is the policy of the School to provide counseling to a student upon his request within a reasonable period (usually 2 weeks) and take into account any problems, personal or academic, in order to help him achieve his goal. In some cases, Department Chairmen are asked to discuss and evaluate the student's knowledge of a subject in which credit is requested. In some instances they may provide other means to determine credit: for example, a project may be assigned in the student's major and this project will be graded for credit.

It is also advised that students use this catalog for keeping a record of all subjects as completed and the grade received. Students should use the tabulation of degree requirements in the catalog in the year in which they started at the School as a basis for maintaining their record. It is also advised to follow the sequence of study as shown in the course progression chart.

The student is advised that course and curriculum changes may affect their program of study. Course and curriculum changes will be published in subsequent issues of the catalog. The student is responsible for integrating these changes into the program of study.

Anthony Guglielmo, *Senior Counselor*
(A S.M E, Norwalk State Technical College; B.S M.E., Bridgeport Engineering Institute) Senior Project Engineer, Sikorsky Aircraft

Nicholas J. Ivanoff, *Counselor*
(A.S.M.E, Norwalk State Technical College; B.S.M.E., Bridgeport Engineering Institute; M.S.M.E, University of Bridgeport) Senior Mechanical Engineer, Norden

Joseph L. Laganza, *Counselor*
(BS.M E, Bridgeport Engineering Institute) Senior Staff Engineer, SVG Lithography Systems

Kim E. Siladi, *Senior Curriculum Counselor, Danbury*
(A S, Norwalk State Technical College; B.S.E.E, Bridgeport Engineering Institute) Senior Software Engineer, Executone Information Systems, Inc.

Faculty Advisors and Faculty Mentors

To expand BEI's services to students a system of student-faculty interaction has been developed utilizing faculty to serve as mentors and advisors. The advisor serves to assist and guide the student in course selection, academic progress and career choice. The mentor serves to assist and guide the student in development of the engineering design concept throughout the student's work in the major. An important component of the faculty interaction with the student is to listen for feedback on course, program and university issues.

Students are encouraged to select a faculty advisor and sign up for appointments in the Counseling Office.

Class of 1995

Bachelor of Science in Electrical Engineering

Coury, Thomas Edward
Magna Cum Laude

Louder, Philip, C.

Narus, Kurtis J.

Obeid-Charrouf, Ali A.

Pontbriant, Kenneth John
Summa Cum Laude

Rossetti, Ronald M.
Summa Cum Laude

Schopfer, Walter J.

Tuccillo, Mark Joseph

Woodbridge, Donald E.

Bachelor of Science in Information Systems Engineering

Auth, Edward Andrew
Summa Cum Laude

Kharaz, Eli
Cum Laude

Parrotta, Vincent C.

Bachelor of Science in Mechanical Engineering

Boath, John R.

Cadotte, Richard Gerard

Diker, Michael F.
Summa Cum Laude

Guerrera, Fred R.

McFadden, Joseph P.
Magna Cum Laude

Patel Rikesh

Shortt, Jr. Robert F.

Associate in Engineering

Breisler, John Joseph

Cooper, John Thomas

Jump, Charles L.

Kapadia, Amit R.

Kohler, III John E.

Luis, Mario J.

Mitri, Louis John

Sabre, Jr. Joseph M.

Wityak, Gregory L.

Yoho, Leslie W.

BEI Alumni Association

The BEI Alumni Association (BEIAA) is a not-for-profit organization whose members are graduates of the School. The BEIAA mission is to: (1) promote active alumni participation in BEI events and activities; (2) act as a liaison between the alumni and the administration of the Institute; and (3) manage the resources of the association.

As a service organization, the Alumni Association accomplishes its mission; by contributions to "The Nighthawk", a school newsletter which is distributed twice yearly to the student body and alumni.

At the Annual meeting, the graduating class of the year is formally inducted into membership in the Association. New alumni are encouraged to become involved in the affairs of the Association through social, educational and business meetings that are held regularly.

Officers of the Alumni Association (1995-1996)
President, *Edward Keplinger, Class of 1973*
Vice President, *Stephan Rescsanski, Class of 1968*
1st V.P. Danbury, *Ester Ziegler, Class of 1978*
Treasurer, *Gerald L. Belanger, Class of 1983*
Secretary, *Joe Hajla, Class of 1978*

Fellows of the Institute

BEI recognizes the contributions to the college by alumni, trustees, faculty and staff through election to Fellow of the Institute. This award is reserved for those individuals who have provided the college with ten or more years of unusual devotion and service in teaching, administration, active operation or alumni activities.

New Fellows are nominated and elected by the Fellows themselves, meeting at least once a year

William H. Alderson, Jr.
Drew Auth
Anand P. Bhatia
Otto J. Calder
Jerome G. Caplan
Daniel F. Dlugos
Alan Dubrow
Anthony T. Fonck
Richard F. Frye, Jr.
Anthoony Guglielmo
Harvey Hoffman
Bruce Hunter
Arthur H King
John M. Kowalonek
William M. Krummel
Ralph A. Langanke
George M Lasell
Frank J. Liburdy, Jr
Gilbert C Mott
Joseph C. Olson
William J Owens
H. Wheeler Parrott
Melvin J. Rich
Felice P. Rizzo
Beatriz C. Ruiz
George Sargent
William Simics
John P. Walsh
Richard G. Weber
Robert E. Wisnieff
Esther Ziegler
Geza Ziegler

Community Service Fellows

BEI recognizes individuals who have made distinguished contributions to the communities served by the College. The award of Community Service Fellow is made to an individual whose activities have resulted in the enhancement of the health, educational or cultural resources of the community.

Fellows
Verne L King
Dorothy B. Larson
Patrick A Pallotto
John G. Phelan
Helen Wasserman
Dr. Geraldine F. Johnson

Summary of Degree Requirements

Summary of Degree Requirements—The minimum requirements for each degree are listed below. The recommended program of study and tabulation of required courses are listed in the appropriate departments. Upon entering BEI the Curriculum Counselor assigned will review the exact course of study required for each individual student to achieve these minimum requirements. For first-year degree students, the courses tabulated in the catalog represent the degree requirement. For students entering with transfer credit or planning to take courses for transfer from other colleges while attending the School, modifications will be established in consultation with the assigned Curriculum Counselor. **A student must receive an average grade of C (QPR of 2.00) or better in all BEI courses in the overall program and in the elected major.**

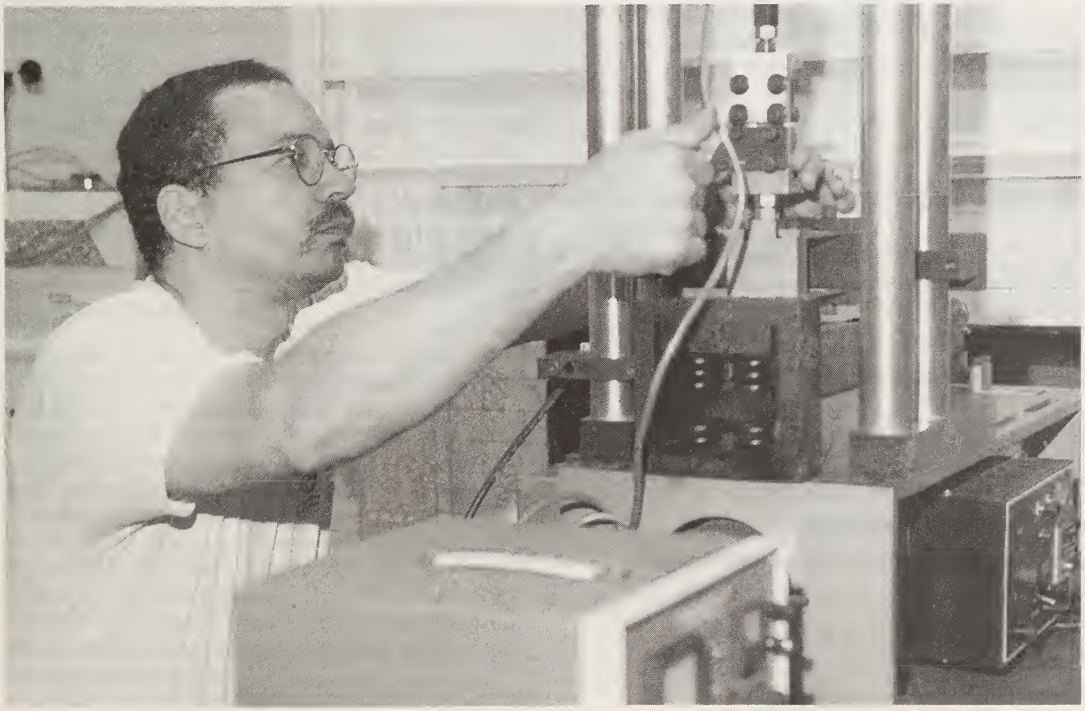
Residency Requirements

1. Bachelor Degree:
The minimum residency requirement for the Bachelor Degree is 30 semester hours which shall include a minimum of 24 semester hours of Engineering Science or Design core courses, Laboratories and Seminars. 15 semester hours minimum must be in the Engineering major

2. Associate Degree:
The minimum residency requirement for the Associate Degree is 24 semester hours which shall include a minimum of 14 semester hours of Engineering Science or Design core courses, Laboratories and Seminars. 9 semester hours minimum must be in the Engineering major.

Time to Complete Degree

The recommended BEI Baccalaureate program without previous college work requires six years of study. It is anticipated that most students should be able to complete the program within a maximum of 10 years. An individual failing to meet this requirement may petition the Dean for an extension. Approval of the Department Chair is also required.



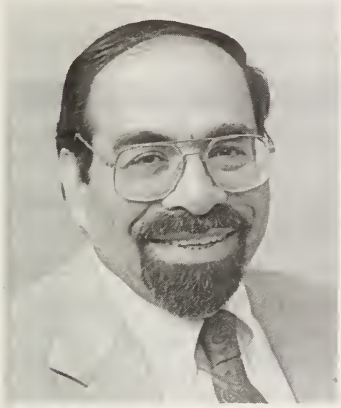
Minimum Requirements for the Bachelor of Science Degree

SUBJECTS	MINIMUM CREDIT HOURS BS IN ME	BS IN ME/MANUFACTURING	BS IN EE	BS IN ISE
Mathematics, including Calculus, Differential Equations and Applied Engineering Mathematics	18	15	17	21
Computer Science	6	6	6	18
Physical Sciences, including Physics and Chemistry	15	15	15	12
Engineering Science Core, Including Engineering Graphics, Statics, Thermodynamics, Engineering Materials, Electrical Circuits	23	20	20	16
Humanities and Social Science: English, Economics, History, Literature, Religious Studies and Electives	21	21	21	21
Mechanical Engineering Science and Design courses, including Laboratories, Seminars and Electives	44	35	3	—
Manufacturing Engineering Science and Design courses including Manufacturing and Robotics Laboratories	—	15	—	—
Electrical Engineering Science and Design courses, including Laboratories, Seminars and Electives	6	6	50	19
Information Systems Engineering	—	—	—	25
Industrial Management and Engineering Economy	6	6	6	6
TOTAL	**139**	**139**	**138**	**138**

Minimum Requirements for the Associate in Engineering Degree

SUBJECT	MINIMUM CREDIT HOURS ME OPTION	EE OPTION
Mathematics, Calculus	9	15
Computer Science	3	3
Physical Sciences, including Physics and Chemistry	15	15
Engineering Science Core, Engineering Graphics, Statics, Electrical Circuits, Engineering Materials	17	17
Humanities and Social Science	12	12
Mechanical Engineering Science and Design	13	—
Electrical Engineering Science and Design	—	6
Industrial Management or Computer Science	3	3
TOTAL	**72**	**71**
Preparatory Program (if required)	18	18
TOTAL	**90**	**89**

Electrical Engineering



Harvey F. Hoffman
Chairman, Electrical
Engineering Department

The goal of the Bachelor of Science in Electrical Engineering program at the BEI School is to prepare the student for a career in electrical and electronic system and subsystem design with the potential for growth into engineering management.

This is an ABET accredited program of study. The first years of the program place major emphasis on basic mathematics and physical sciences to provide the background for the analytical approach used in the engineering science and design courses. Introductory courses are taught with an engineering applications focus. After completing the preparatory mathematics, science, and liberal arts courses a basic understanding in electrical, mechanical, and materials engineering concepts is developed.

In addition, courses in engineering management and further liberal arts studies are provided to improve the students' communication skills and develop an appreciation for his/her career environment. Building on the basic engineering science core, advanced courses in electrical engineering further develop the knowledge of engineering science. There is increasing emphasis on the use of design assignments to familiarize the student with techniques used to solve practical engineering problems. To permit the student to tailor his/her program to specific career objectives, advanced elective courses are included in the later years of the baccalaureate program.

The classroom lecture and recitation studies are supplemented by laboratory work and computer applications designed to expand the student's understanding of the analytic and physical principles and to provide "hands-on" experience.

Faculty

Harvey Hoffman, *Chairman & Professor*
Robert E. Wisnieff, *Chairman Emeritus & Professor*
Denton Pearsall, *Vice Chairman & Professor*

Vincent Bello, *Assistant Professor*
Paul Botosani, *Professor*
Paul Danzer, *Senior Instructor*
Jeffrey Denerberg, *Associate Professor*
Fred DePonte, *Professor*
Bernard Dickers, *Instructor*
Hai K. Do, *Instructor*
Robert A. Fisch, *Assistant Professor*
Pradeep Govil, *Assistant Professor*
Sarma Gullapalli, *Professor*
Abdal A. Hye, *Assistant Professor*
William Janeff, *Professor*
Edward G. Keplinger, *Senior Instructor*
William M. Krummel, *Professor*
Robert J. Pellegrini, *Instructor*
Clement R. Pizzo, *Associate Professor*
Carl Ragerholm, *Instructor*
Lawrence J. Reed, *Senior Instructor*
Albert Seedman, *Instructor*

1995-1996 BACHELOR OF SCIENCE DEGREE

Electrical Engineering

Recommended Program of Study

SEMESTER	FIRST YEAR	SECOND YEAR	THIRD YEAR
FIRST	MA 25 Calculus I CD 211 Engineering Graphics-CAD I (4) EN 11 English I	ME 201 Statics MA 321 Differential Equations BE 343 Physics- Electricity	EE 230 Electron Devices and Applications EE 220 Linear Circuit Analysis BE 201 Chemistry I
SECOND	MA 26 Calculus II EN 12 English II BE 341 Physics-Mechanics	EE 210 Circuit Analysis I EE 224 Advanced Mathematics CS 131 Computer Science I	EE 301 Transform Analysis BE 202 Chemistry II EE 281 Electrical Laboratory (1)
THIRD	MA 227 Calculus III BE 342 Physics- Heat, Light, Sound	HI 30 Foundations of Modernization EE 212 Computer Aided Circuit Analysis (2)	EE 245 Digital Electronics — Elective - Fine Arts

SEMESTER	FOURTH YEAR	FIFTH YEAR	SIXTH YEAR
FIRST	EE 302 Feedback Systems Engineering EC 11 Economics or EC 12 EE 330 Electron Device Models	EE 345 Digital Comp. Systems ME 205 Strength of Materials I MF 206 Engineering Materials	BE 374 Engineering Economy MF 390 Engineering Seminar — Elective Major 2
SECOND	CS 132 Computer Science II PY 132 Industrial Management EE 332 Electronic Engineering	EE 350 Communications Systems EE 321 Fundamentals of Electric Fields — Elective Major 1	ME 245 Thermal Engineering ME 390 Engineering Seminar — Elective Major 3
THIRD	EE 380 Intermediate Electrical Laboratory (1) EE 376 Elect. System Design Analys. EE 320 Vector Analysis (2)	— Religious Study Elective — History Elective	EE 382 Advanced Electrical Project (2)

* The Advanced Electrical Project may be taken as independent study after the student has completed the core (non-elective) EE courses and one elective.

Engineering seminar 804 is recommended for semesters 1 and 2 of final year.

All courses are 3 credit hours except as indicated in parentheses.

1995-1996 BACHELOR OF SCIENCE DEGREE

Electrical Engineering

Tabulation of Degree Requirements

REQUIRED COURSES		PREREQUISITE
Mathematics: 17 Credits:		
MA 25	Calculus I	Precalculus, trig, RM 103
MA 26	Calculus II	MA 25
MA 227	Calculus III	MA 26
MA 321	Differential Equations	MA 227
EE 224	Advanced Mathematics	MA 321
EE 320	Vector Analysis (2)	MA 321
Computer Science: 6 Credits:		
CS 131	Computer Science I	106, RM 117, MA 227
CS 132	Computer Science II	CS 131
Chemistry and Materials: 9 Credits:		
BE 201	Chemistry I	Algebra or RM 101
BE 202	Chemistry II	BE 201
MF 206	Engineering Materials	BE 202
Engineering Graphics: 4 Credits:		
CD 211	Engineering Graphics CAD I (4)	
Liberal Arts: 21 Credits:		
EN 11	English I	
EN 12	English II	EN 11
EC 11 or EC 12	Economics	EN 11
HI 30	Foundations of Modernization in the West	
____	Religious Studies Elective	
____	History/Social Science Elective	
____	Art Elective	

(Continued on next page)

Required Courses for Electrical Engineering

(continued from page 37)

REQUIRED COURSES		PREREQUISITE
Physics: 9 Credits:		
BE 341	Physics-Mechanics	MA 26
BE 342	Physics-Heat, Light, Sound	BE 341
BE 343	Physics-Electricity	MA 227, BE 342
Mechanical Engineering: 9 Credits:		
ME 201	Statics	MA 25, BE 341, CD 211
ME 205	Strength of Materials I	CS 132, ME 201
ME 245	Thermal Engineering	MA 321, BE 342
Electrical Engineering: 51 Credits:		
EE 210	Circuit Analysis I	MA 227, BE 343
EE 212	Computer Aided Circuit Analysis	EE 210, CS 131, MA 321
EE 220	Linear Circuit Analysis	EE 212, EE 224
EE 230	Electron Devices and Applications	EE 210
EE 245	Digital Electronics	EE 230
EE 280	Electrical Laboratory (1)	EE 230, EE 211 or EE 212
EE 301	Transform Analysis Techniques	EE 220
EE 302	Engineering Feedback Systems	EE 301
EE 321	Fundamentals of Electromagnetic Fields	EE 320, EE 301
EE 330	Electron Amplifiers and Applications	EE 230
EE 332	Electronic Engineering	EE 330
EE 345	Digital Computing Systems	EE 245
EE 350	Communications Systems	EE 301
EE 376	Electrical System Design Analysis	EE 230, EE 212
EE 380	Intermediate Electrical Laboratory (1)	EE 301, EE 332, EE 280
EE 382	Advanced Electrical Project (2)	elective, EE 380
____	[3] Electives. Electrical Engr	Refer to Course Descriptions
Seminar: 6 Credits:		
MF 390	Engineering Design Seminar	EE 380, Final Year
Industrial Management: 6 Credits:		
PY 132	Industrial Management	EC 11 or EC 12
BE 374	Engineering Economy	MA 26, EC 11 or EC 12

TOTAL Degree Credit Requirements: **138** Credits

1995-1996 ASSOCIATE IN ENGINEERING DEGREE

Electrical Engineering

Recommended Program of Study

SEMESTER	FIRST YEAR	SECOND YEAR	THIRD YEAR
FIRST	MA 25 Calculus I CD 211 Engineering Graphics-CAD I (4) EN 11 English I	ME 201 Statics MA 321 Differential Equations BE 343 Physics- Electricity	EE 230 Electron Devices and Applications EC 11 or EC 12 Economics MF 206 Engineering Materials
SECOND	MA 26 Calculus II BE 201 Chemistry I BE 341 Physics-Mechanics	EE 210 Circuit Analysis I BE 202 Chemistry II CS 131 Computer Science I	EN 12 English II CS 132 Computer Science II or* BE 371 Industrial Management EE 281 Electrical Laboratory (1)
THIRD	MA 227 Calculus III BE 342 Physics-Heat, Light, Sound	HI 30 Foundations of Modernization EE 212 Computer Aided Circuit Analysis	EE 245 Digital Electronics EE 224 Advanced Mathematics

* Students planning to continue a BS program should take 120

All courses 3 credit hours except as indicated in parenthesis.

For Students Requiring Additional Preparation

The Preparatory Year

BEI recognizes that some entering students have limited background in the fundamentals necessary to undertake the engineering program. To that end a series of courses are offered to better prepare the student for the intensive program that follows.

The courses most often needed for additional preparation are in mathematics. Three very critical courses (math 1101, 1102, 103) should be taken before the student begins the calculus sequence. In addition to the mathematics preparation familiarization with the personal computer is a necessity and an introductory course (CS 117) is required of those who have not experienced a programming language or interfacing with the computer.

These courses must be taken by all students that cannot demonstrate proficiency In these disciplines. The courses may be waived after review by the counselor and department chairperson. Credit exams may also provide for the waiving of specific courses.

Preparatory Year

First Semester

RM 101 Introduction to College Algebra (6)

*EN 11 English I

Second Semester

RM 102 College Algebra (6)

RM 117 Introduction to Computers

Third Semester

RM 103 College Algebra and Trigonometry

* Strongly recommended

1995-1996 ASSOCIATE IN ENGINEERING DEGREE

Electrical Engineering

Tabulation of Degree Requirements

PREPARATORY PROGRAM (see Recommended Program for description)		PREREQUISITE
RM 101	Introduction to College Algebra (6)	—
RM 102	College Algebra (6)	RM 101
RM 103	College Algebra and Trigonometry	RM 102
RM 117	Introduction to Computers	—

REQUIRED COURSES		PREREQUISITE
Mathematics: 15 Credits:		
MA 25	Calculus I	Precalculus, trig, or RM 103
MA 26	Calculus II	MA 25
MA 227	Calculus III	MA 26
MA 321	Differential Equations	MA 227
EE 224	Advanced Mathematics	MA 321
Computer Science: 3 Credits:		
CS 131	Computer Science I	MA 227, RM 117
CS 132	Computer Science II or BE 371	CS 131
Chemistry and Materials: 9 Credits:		
BE 201	Chemistry I	Algebra or RM 101
BE 202	Chemistry II	BE 201
MF 206	Engineering Materials	BE 202
Engineering Graphics: 4 Credits:		
CD 211	Engineering Graphics CAD I (4)	
Liberal Arts: 12 Credits:		
EN 11	English I	
EN 12	English II	EN 11
EC 11 or EC 12	Economics	EN 11
HI 30	Foundations of Modernization in the West	

(Continued on next page)

Required Courses for Electrical Engineering

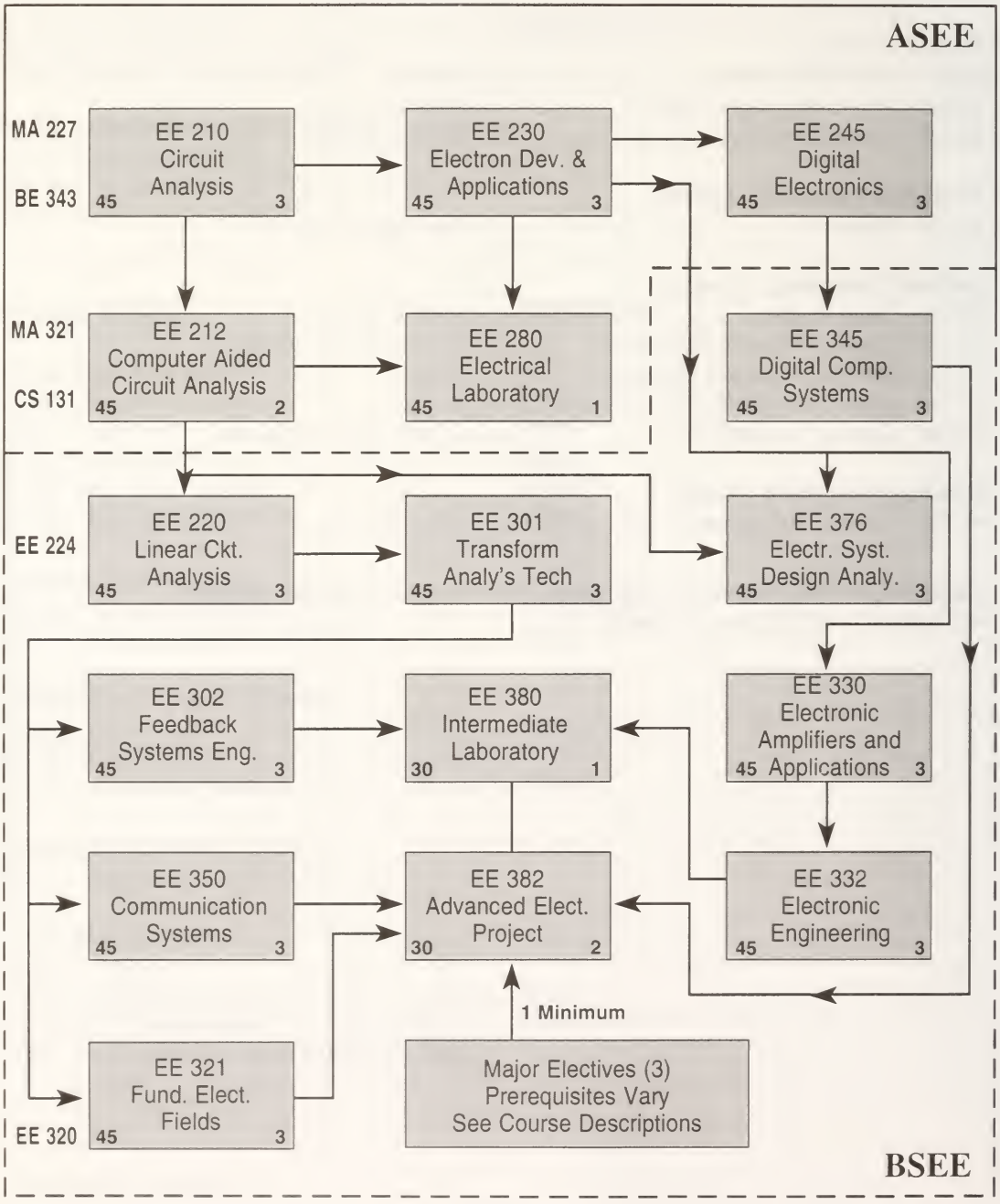
(continued from page 40)

REQUIRED COURSES		PREREQUISITE
Physics: 9 Credits:		
BE 341	Physics-Mechanics	MA 26
BE 342	Physics-Heat, Light, Sound	BE 341
BE 343	Physics-Electricity	MA 227, BE 342
Mechanical Engineering: 3 Credits:		
ME 201	Statics	MA 25, BE 341, CD 211
Electrical Engineering: 13 Credits:		
EE 210	Circuit Analysis	MA 227, BE 343
EE 212	Computer Aided Circuit Analysis	EE 210, CS 131, MA 321
EE 230	Electron Devices and Applications	EE 210
EE 245	Digital Electronics	EE 230
EE 280	Electrical Laboratory(1)	EE 230, EE 211 or EE 212
Industrial Management: 3 Credits:		
PY 132	Industrial Management	EC 11 or EC 12

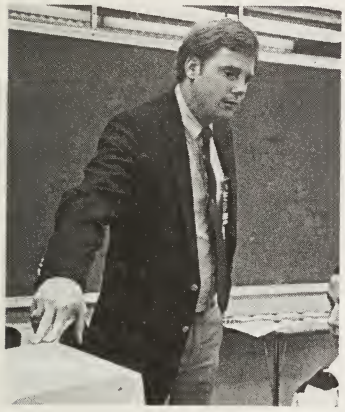
TOTAL Degree Credit Requirements: **71** Credits (does not include preparatory program)
NOTE: BE 371 or CS 132 may be elected.

1995-96 Electrical Engineering Course Progression

For major elective prerequisites, see course descriptions



Information Systems Engineering



Mark Ramsey
Chairman Information
Systems Engineering

The Information Systems Engineer w/ill be educated in the disciplines of:

- **Information Science:** Defined as the collection, classification, storage, retrieval and dissemination of knowledge.
- **Information Theory:** Defined as a theory that deals statistically with information, the measurement of its content in terms of its distinguishing essential characteristics or by the number of alternatives from which it makes a choice possible, and with the efficiency of processes of communication between men and machines (as in telecommunications or in computing machines).
- **Telecommunications:** As it pertains to network systems hardware and software, intelligent and/or dumb terminals, locally or remotely connected via coaxial or fibre optic cable, and LAN and WAN Network operating protocols.
- **Digital Electronics:** In recent times, all information, be it Alpha/Numeric Data or Audio/Video signals, is communicated in digital form, thus mandating a solid foundation in digital electronics and coding theory.
- **Multimedia Technologies**

Faculty

Mark Ramsey, *Assistant Professor & Chairman*

John Armstrong, *Instructor*
John Crowley, *Associate Professor*
James DeCarli, *Instructor*
John Dranchak, *Instructor*
Bill Guelakis, *Instructor*
Karen Hills, *Professor*
Harvey Hoffman, *Professor*
Herb Kolodny, *Instructor*
Thomas Mannino, *Senior Instructor*
Bernistine McCloud, *Instructor*
Raymond Metro, *Senior Instructor*
John Porter, *Associate Professor*
Wayne Raulerson, *Senior Instructor*
Lawrence J. Reed, *Instructor*
Richard Siddall, *Instructor*
Les Trachtman, *Instructor*
Earl Whiskeyman, *Instructor*

1995-1996 BACHELOR OF SCIENCE DEGREE

Information Systems Engineering

Recommended Program of Study

SEMESTER	FIRST YEAR	SECOND YEAR	THIRD YEAR
FIRST	MA 25 Calculus I CD 211 Engineering Graphics EN 11 English I	CS 191 Computer Science I MA 321 Differential Equations BE 343 Physics- Electrical	EE 230 Electron Devices and Applications EE 220 Linear Circuit Analysis BE 201 Chemistry I
SECOND	MA 26 Calculus II EN 12 English II BE 341 Physics-Mechanical	EE 210 Circuit Analysis I EE 224 Advanced Mathematics CS 133 Intro. to SW Des. w/C	EE 301 Transform Analysis IC 355 Data Base Management EE 281 Electrical Laboratory (1)
THIRD	MA 227 Calculus III BE 342 Physics- Heat, Light, Sound	HI 30 Foundations of Modernization EE 212 Computer Aided Circuit Analysis	— Fine Arts Elective EE 245 Digital Electronics

SEMESTER	FOURTH YEAR	FIFTH YEAR	SIXTH YEAR
FIRST	EE 302 FB Contr. Syst. EC 11 or EC 12 Economics IC 350 Intro to Info Sys.	IC 209 Prob. & Statistics CS 322 Computer Arch. I MF 206 Engineering Materials	BE 374 Engineering Economy IC 122 Simulation Techniques — Elective
SECOND	ME 274 Analytical Methods PY 132 Industrial Management IC 380 Software Eng. Techniques	ME 245 Thermal Engrg. Systems CS 331 Operating Systems IC 360 Communication Networks	IC 326 Computer Arch. 2 EE 350 Communic. Systems IC 385 Systems Engineering
THIRD	IC 381 Software Engrg. Practices EE 345 Digital Comp. Systems	— Religious Studies Elective IC 390 Computer Apps. Lab (1)	— History Elective IC 392 Senior Project

All courses are 3 credit hours except as indicated in parenthesis.

1995-1996 BACHELOR OF SCIENCE DEGREE

Information Systems Engineering

Tabulation of Degree Requirements

REQUIRED COURSES		PREREQUISITE
Mathematics: 21 Credits		
MA 25	Calculus I	PreCalc, Trig, RM 103
MA 26	Calculus II	MA 25
MA 227	Calculus III	MA 26
MA 321	Differential Equations	MA 227
EE 224	Advanced Mathematics	MA 321
IC 209	Probability and Statistics	MA 26
ME 274	Analytical Methods	EE 224
Computer Science: 18 Credits		
CS 131	Computer Science	MA 227 & RM 117
CS 133	Software Design with C	CS 131
CS 322	Computer Architecture I	EE 345
CS 331	Operating Systems	CS 322
IC 222	Simulation Techniques	MA 321, IC 209, CS 133
IC 326	Computer Architecture II	CS 322
Chemistry: 3 Credits		
BE 201	Chemistry I	Algebra or RM 101
Engineering Graphics: 4 Credits		
CD 211	Engineering Graphics/CAD I (4 credits)	
Information Systems Engineering: 25 Credits		
IC 341	Obj. Oriented Des/Rel. Database	IC 355
IC 350	Intro to Information Syst Engr.	CS 133
IC 355	Database Management Systems	CS 133
IC 360	Communication Networks	IC 350, EE 345
IC 385	Systems Engineering	IC 360, IC 380
IC 390	Computer Applications Lab (1 credit)	IC 360
IC 392	Senior Project	IC 385
____	ISE Elective (3 credits)	
____	ISE Elective (3 credits)	
Liberal Arts: 21 Credits		
EN 11	English I	
EN 12	English II	EN 11

(Continued on next page)

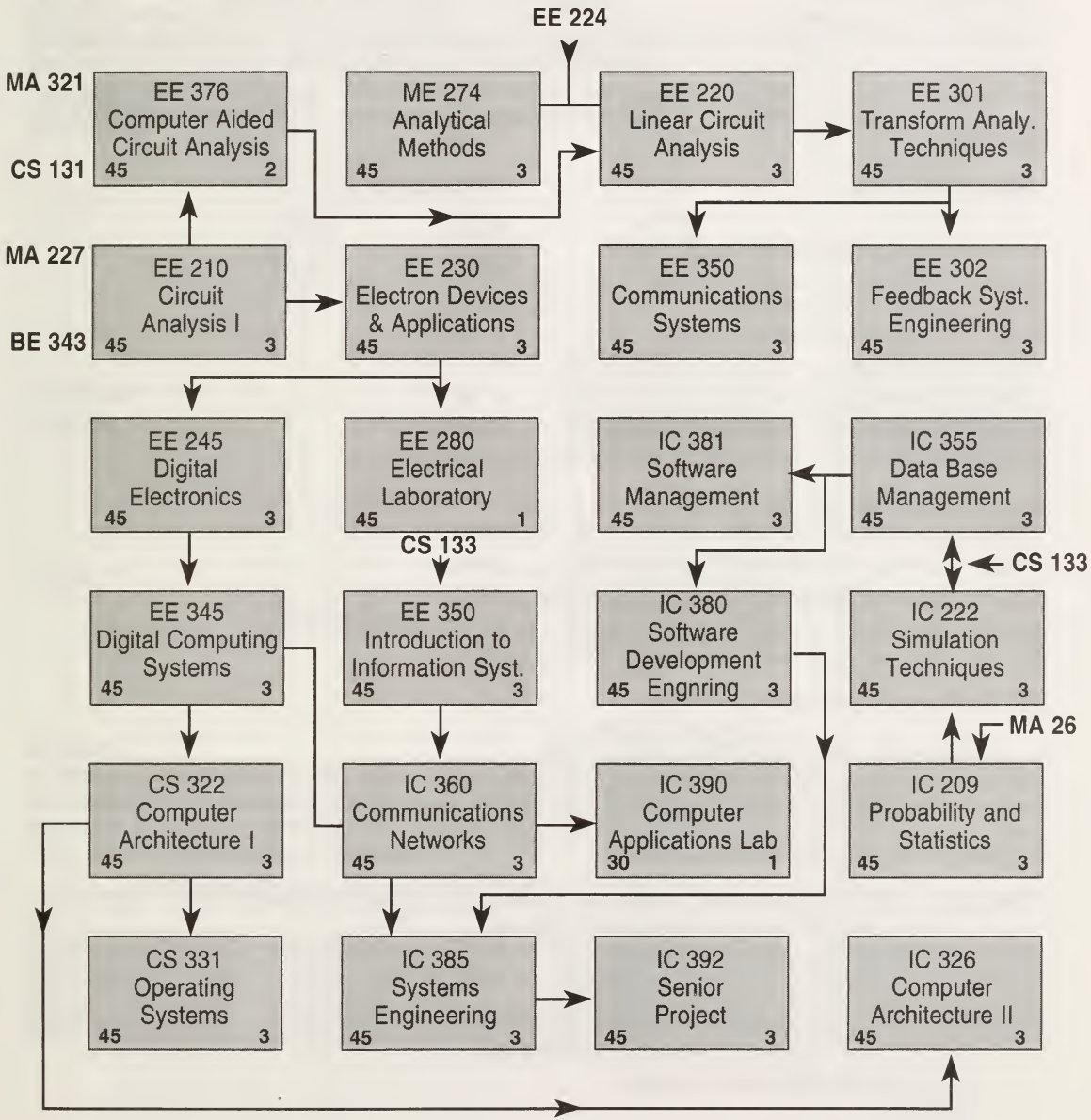
Required Courses for Information Systems Engineering

(continued from page 45)

REQUIRED COURSES		PREREQUISITE
EC 11 or EC 12	Economics	EN 11
HI 30	Foundations of Modernization	
____	Religious Studies Elective	
____	American History Elective	EN 11
____	Fine Arts Elective	
Physics: 9 Credits		
BE 341	Physics Mechanics	MA 26
BE 342	Physics Heat Light Sound	BE 341
BE 343	Physics Electrical	MA 227, BE 342
Mechanical Engineering: 3 Credits		
ME 245	Thermal Engineering	MA 321, BE 342
Electrical Engineering: 15 Credits		
EE 210	Circuit Analysis I	MA 227, BE 343
EE 212	Computer Aided Circuit Analysis (2 credits)	EE 210, CS 131, MA 321
EE 230	Electron Devices	EE 210
EE 245	Digital Electronics	EE 230
EE 280	Electrical Laboratory (1 credit)	EE 230, EE 211 or EE 212
EE 345	Digital Computing Systems	EE 245
Industrial Management: 6 Credits		
BE 374	Engineering Economy	MA 26, EC 11 or EC 12
PY 132	Industrial Management	EC 11 or EC 12
Communication Option: 12 Credits		
EE 220	Linear Circuit Analysis	EE 212, EE 224
Either [EE 301	Transform Analysis	EE 220
EE 350	Communication Systems	EE 301
____	ISE Elective (3 credits)	
Distributive Systems Option: 12 Credits		
IC 342	Implementing Client-Server Infrastr.	IC 341
One of these [IC 343	Programming Client-Server Appl.	IC 342
IC 344	Event Driven Programming for Win. .	IC 342
IC 349	Programming with Forms	IC 342
IC 345	Network Software	IC 341
____	ISE Elective (3 credits)	

TOTAL Degree Credit Requirements: **138**

1995-1996 Information Systems Engineering Course Progression



SPECIAL PROGRAM FEATURES

Information Systems Engineering

A. Advanced Standing

In instances when prospective students for the ISE program have completed significant college-level work at other institutions, the transferability of credits will be decided on an individual basis. In most cases, course titles and content, which clearly correspond to BEI courses, will be decided expeditiously. In all cases, a course of study will be structured to satisfy the degree requirements in the most efficient manner. An example is given below for a student who has recently earned a B.S. in Electrical Engineering, and has been granted the maximum transferable credits:

REQUIRED COURSES		PREREQUISITE
Information Systems Engineering: 22 Credits		
IC 355	Database Management Systems	CS 133
IC 360	Communication Networks	EE 350
IC 341	Obj. Oriented Des/Rel Database	IC 355
____	ISE Elective	ISE
IC 385	Systems Engineering	IC 360
IC 390	Computer Application Lab (1 credit)	IC 360
IC 392	Senior Project	IC 390
Computer Science: 15 Credits		
CS 322	Computer Architecture I	EE 345
IC 326	Computer Architecture II	CS 322
CS 331	Operating Systems	CS 322
IC 222	Simulation Techniques	MA 321, IC 209, CS 133
CS 133	Software Design with C	CS 131

TOTAL Degree Requirements **37** Credits

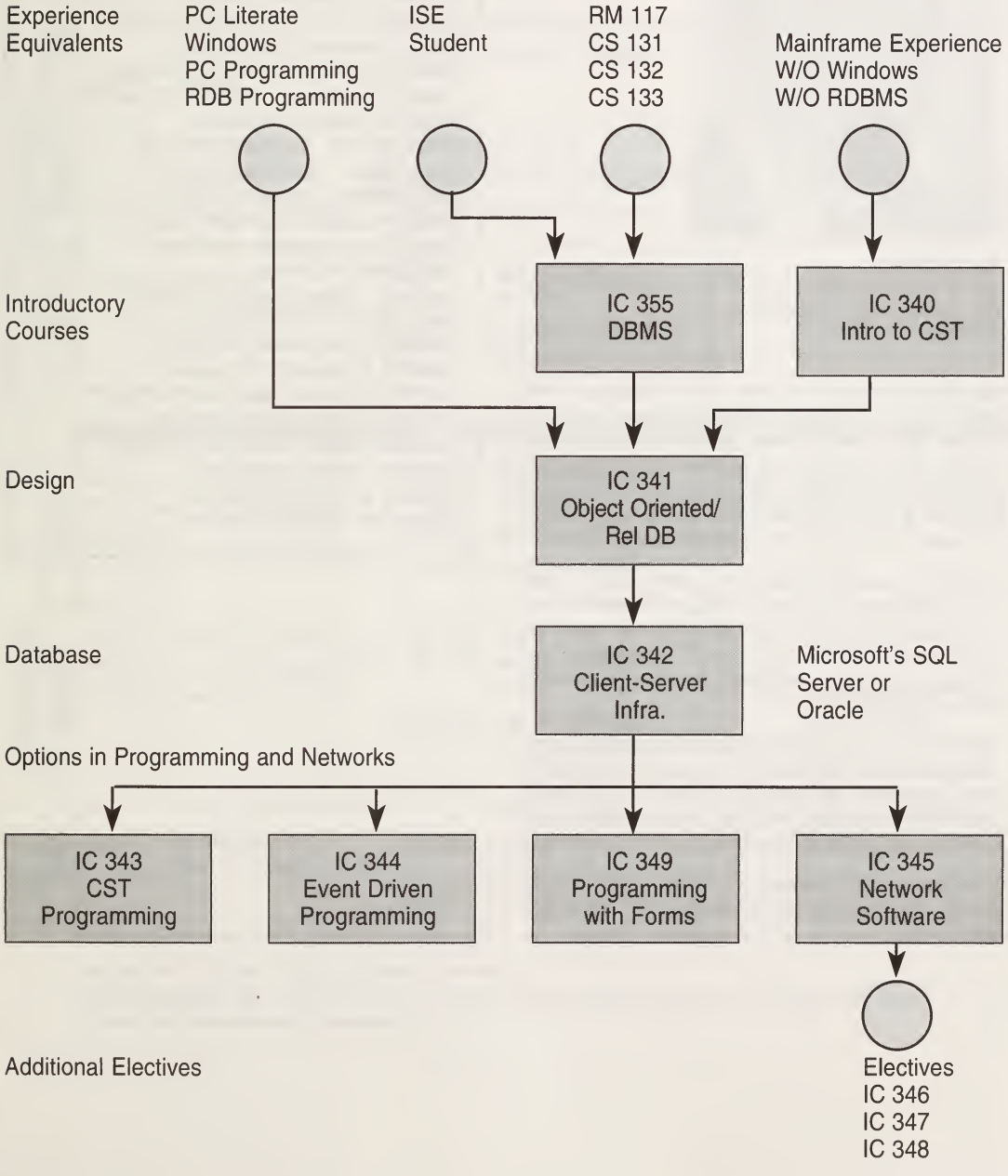
B. Program Segments (Sub sets of the total program)

Many prospective students are interested in completing only an identifiable portion of the full degree program, not wishing to complete all the degree requirements. Such students usually have accomplished considerable college work and even attained advanced degrees. There is a great number of possible entry points, and a wide range of options, as shown in the following example.

EXAMPLE With a computer systems background, aiming for a degree in Information Systems Engineering,
IC 250—Introduction to Information Systems
IC 355—Database Management
IC 360—Communication Networks
IC 380—Software Development Engineering
IC 381—Software Management Engineering
IC 385—Systems Engineering

In the framework of the Information Systems Engineering, BEI offers an Information Technology Program (Client/Server), and through the School of Continuing Education of Fairfield University, it grants a Client/Server Technology Certificate. The course progression for this concentration is shown below:

ISE — Client/Server Option 1995-1996 Course Progression



Mechanical Engineering

Alan Dubrow
Chairman, Mechanical Engineering Department

As advances in both technology and education continue, the Mechanical Engineering courses and curriculum at BEI are enhanced to ensure that they support the needs of the Mechanical Engineering student and accelerate his/her progress in the discipline. As a result, the BEI Mechanical Engineering graduate is employable in a great diversity of jobs.

The ABET accedited program of study at BEI leads to the Bachelor of Science Degree in Mechanical Engineering. However, the student can earn an Associate in Engineering Degree by completing the Mathematics, Science and Basic Engineering Science portion of the BS program.

The Mechanical Engineering Department at BEI provides the student with faculty who are not only experienced teachers, but also are current in the latest technology practiced in industry The students benefit from this well-rounded approach.

The Mechanical Engineering lecture courses include design projects and both computer and laboratory experience.

Faculty

Alan Dubrow, *Chairman & Professor*

Clement L. Anekwe, *Associate Professor*
Avi Ben-Porat, *Associate Professor*
Paul J. Botosani, *Professor*
Yew-Tsung Chen, *Associate Professor*
Joseph DeFraycer, *Assistant Professor*
Paul Der, *Assistant Professor*
Shah Etemad, *Assistant Professor*
Leon Feigin, *Assistant Professor*
Jay Hoffman, *Assistant Professor*
David H. Hunter, *Associate Professor*
Peter Kochersperger, *Instructor*
Neil Krebs, *Professor*
Walter J. Kulpa, *Associate Professor*
Ray Lepkas, *Instructor*
Everett P. Loppacker, *Instructor*
Peter M. Moanfeldt, *Professor*
Marvin J. Parnes, *Associate Professor*
Patrick Rooney, *Senior Instructor*
Jacob C. Rubin, *Associate Professor*
Douglas Tritsch, *Instructor*
Richard G. Weber, *Professor*
Clifford A. Wojan, *Professor*

1995-1996 BACHELOR OF SCIENCE DEGREE

Mechanical Engineering

Recommended Program of Study

SEMESTER	FIRST YEAR	SECOND YEAR	THIRD YEAR
FIRST	MA 25 Calculus I CD 211 Engineering Graphics—CAD I (4) EN 11 English I	ME 201 Statics MA 321 Differential Equations BE 343 Physics- Electrical	ME 203 Kinematics ME 205 Strength of Materials BE 201 Chemistry I
SECOND	MA 26 Calculus II EN 12 English II BE 341 Physics-Mechanics	ME 202 Dynamics EE 224 Advanced Mathematics CS 131 Computer Science I	CS 132 Computer Science II BE 202 Chemistry II ME 306 Strength of Materials II
THIRD	MA 227 Calculus III BE 342 Physics- Heat, Light, Sound	— Religious Studies Elective CD 212 Engineering Graphics—CAD II (4)	ME 274 Analytical Methods* ME 308 M.E. Laboratory I—Mechanical Systems (1)

SEMESTER	FOURTH YEAR	FIFTH YEAR	SIXTH YEAR
FIRST	ME 241 Thermodynamics I EC 11 or EC 12 Economics ME 309 Mechanical Vibrations	EE 230 Electron Devices & Applications ME 311 Machine Design ME 347 Fluid Mechanics	BE 374 Engineering Economy MF 390 Engineering Seminar† MF 206 Engineering Materials
SECOND	EE 210 Electrical Circuits I BE 371 Industrial Management ME 342 Thermodynamics II	ME 349 Heat Transfer ME 312 Advanced Machine Design ME 352 M.E. Laboratory II Energy Systems (1)	MF 307 Adv. Engineering Materials MF 390 Engineering Seminar† — Elective (Major)
THIRD	— Elective (Fine Arts) HI 30 Foundations of Modernization	— Elective (Major) EE 290 Introduction to Electrical Systems (2) EE 291 Basic Electrical Lab. (1)	— Elective (American History)

All courses 3 credit hours except as indicated in parenthesis.

† Engineering Seminar 804 is recommended for Semester 1 and 2 of the student's final year. Credit 6 semester hours.

* Not required for Manufacturing Engineering

1995-1996 BACHELOR OF SCIENCE DEGREE

Mechanical Engineering

Tabulation of Degree Requirements

REQUIRED COURSES		PREREQUISITE
Mathematics: 18 Credits:		
MA 25	Calculus I	Precalculus, trig, or RM 103
MA 26	Calculus II	MA 25
MA 227	Calculus III	MA 26
MA 321	Differential Equations	MA 227
EE 224	Advanced Mathematics	MA 321
ME 274	Analytical Methods for Mechanical Engineers	EE 224
Computer Science: 6 Credits:		
CS 131	Computer Science I	MA 227, RM 117
CS 132	Computer Science II	EE 224
Chemistry and Materials: 12 Credits:		
BE 201	Chemistry I	RM 101
BE 202	Chemistry II	BE 201
MF 206	Engineering Materials	BE 202
MF 307	Adv Engineering Materials	MF 206
Engineering Graphics: 8 Credits:		
CD 211	Engineering Graphics CAD I	
CD 212	Engineering Graphics CAD II	CD 010 or 211
Liberal Arts: 21 Credits:		
EN 11	English I	
EN 12	English II	EN 11
EC 11 or EC 12	Economics	EN 11
HI 30	Foundations of Modernization in the West	
____	Religious Studies Elective	
____	American History Elective	
____	Fine Arts Elective	

(Continued on next page)

Required Courses for Mechanical Engineering

(continued from page 52)

REQUIRED COURSES		PREREQUISITE
Physics: 9 Credits:		
BE 341	Physics-Mechanics	MA 26
BE 342	Physics-Heat, Light, Sound	BE 341
BE 343	Physics-Electricity	MA 227, BE 342
Mechanical Engineering: 44 Credits:		
ME 201	Statics	MA 25, BE 341, CD 211
ME 202	Dynamics	MA 26, ME 201
ME 203	Kinematics	CS 131, CD 212, ME 202
ME 205	Strength of Materials I	ME 201
ME 241	Thermodynamics I	MA 321, BE 342
ME 305	Strength of Materials II	ME 205
ME 308	Mechanical Engineering Laboratory I—Mechanical Systems (1)	BE 341, ME 203, ME 305
ME 309	Mechanical Vibrations	ME 274, CS 132, ME 203
ME 311	Machine Design	ME 203, ME 305
ME 312	Advanced Machine Design	ME 309, ME 311
ME 342	Thermodynamics II	ME 241
ME 347	Fluid Mechanics	ME 201, ME 241
ME 349	Heat Transfer	CS 132, BE 342, ME 241, ME 347
ME 352	Mechanical Engineering Laboratory II—Energy Systems (1)	ME 308, ME 342, ME 309, ME 347
____ [2]	Electives, Mech. Engr	Refer to Course Descriptions
Electrical Engineering: 9 Credits:		
EE 210	Circuit Analysis 1	MA 227, BE 343
EE 230	Electron Devices and Applications	EE 210
EE 290	Introduction to Electrical Systems (2)	EE 230
EE 291	Basic Electric Laboratory (1)	EE 230
Seminar: 6 Credits:		
MF 390	Engineering Design Seminar	ME 352, Final Year
Industrial Management: 6 Credits:		
BE 374	Engineering Economy	MA 26, EC 11 or EC 12
PY 132	Industrial Management	EC 11 or EC 12

TOTAL Degree Credit Requirements: **139** Credits

1995-1996 ASSOCIATE IN ENGINEERING DEGREE

Mechanical Engineering

Recommended Program of Study

SEMESTER	FIRST YEAR	SECOND YEAR	THIRD YEAR
FIRST	MA 25 Calculus I CD 211 Engineering Graphics—CAD I (4) EN 11 English I	ME 201 Statics EC 11 or EC 12 Economics BE 201 Chemistry I	ME 203 Kinematics ME 305 Strength of Materials BE 343 Physic—Electricity
SECOND	MA 26 Calculus II EN 12 English II BE 341 Physics-Mechanics	ME 202 Dynamics BE 202 Chemistry II CS 131 Computer Science I	EE 210 Circuit Analysis I BE 371 Industrial Management or 107 Differential Equations ME 306 Strength of Materials II
THIRD	MA 227 Calculus III BE 342 Physics- Heat, Light, Sound	HI 30 Foundations of Modernization CD 212 Engineering Graphics—CAD II (4)	MF 206 Engineering Materials ME 308 M.E. Laboratory I—Mechanical Systems (1)

All courses 3 credit hours except as indicated in parenthesis.

* For those continuing matriculation for the baccalaureate degree it is advised that Differential Equations be substituted for Industrial Management.

For Students Requiring Additional Preparation

The Preparatory Year

The BEI School of Engineering recognizes that some entering students have limited background in the fundamentals necessary to undertake the engineering program. To that end, a series of courses are offered to better prepare the student for the intensive program that follows.

The courses most often needed for additional preparation are in mathematics. Three very critical courses (Math 1101, 1102, 103) should be taken before the student begins the calculus sequence. In addition to the mathematics preparation, familiarization with the personal computer is a necessity and an introductory course (CS 117) is required of those who have no experience with a programming language.

These courses must be taken by all students that cannot demonstrate proficiency in these disciplines. The courses may be waived after review by the counselor and department chairperson. Credit exams may also provide for the waiving of specific courses.

Preparatory Year

First Semester

1101 Introduction to College Algebra (6)
*401 English I

Second Semester

1102 College Algebra (6)
117 Introduction to Computers

Third Semester

103 College Algebra and Trigonometry

* Strongly recommended

1995-1996 ASSOCIATE IN ENGINEERING DEGREE

Mechanical Engineering

Tabulation of Degree Requirements

PREPARATORY PROGRAM (see Recommended Program for description)		PREREQUISITE
RM 101	Introduction to College Algebra (6)	
RM 102	College Algebra (6)	RM 101
RM 103	College Algebra and Trigonometry	RM 102
RM 117	Introduction to Computers	

REQUIRED COURSES		PREREQUISITE
Mathematics: 9 Credits:		
MA 25	Calculus I	Precalculus, trig, or RM 103
MA 26	Calculus II	MA 25
MA 227	Calculus III	MA 26
MA 321	Differential Equations	MA 227
Computer Science: 3 Credits:		
CS 131	Computer Science I	MA 227, RM 117
Chemistry and Materials: 9 Credits:		
BE 201	Chemistry I	RM 101
BE 202	Chemistry II	BE 201
MF 206	Engineering Materials	BE 202
Engineering Graphics: 8 Credits:		
CD 211	Engineering Graphics CAD I	
CD 212	Engineering Graphics CAD II	CD 010 or CD 211
Liberal Arts: 12 Credits:		
EN 11	English I	
EN 12	English II	EN 11
EC 11 or EC 12	Economics	EN 11
HI 30	Foundations of Modernization in the West	

(Continued on next page)

Tabulation of Degree Requirements for Associate Mechanical Engineering

(Continued from page 55)

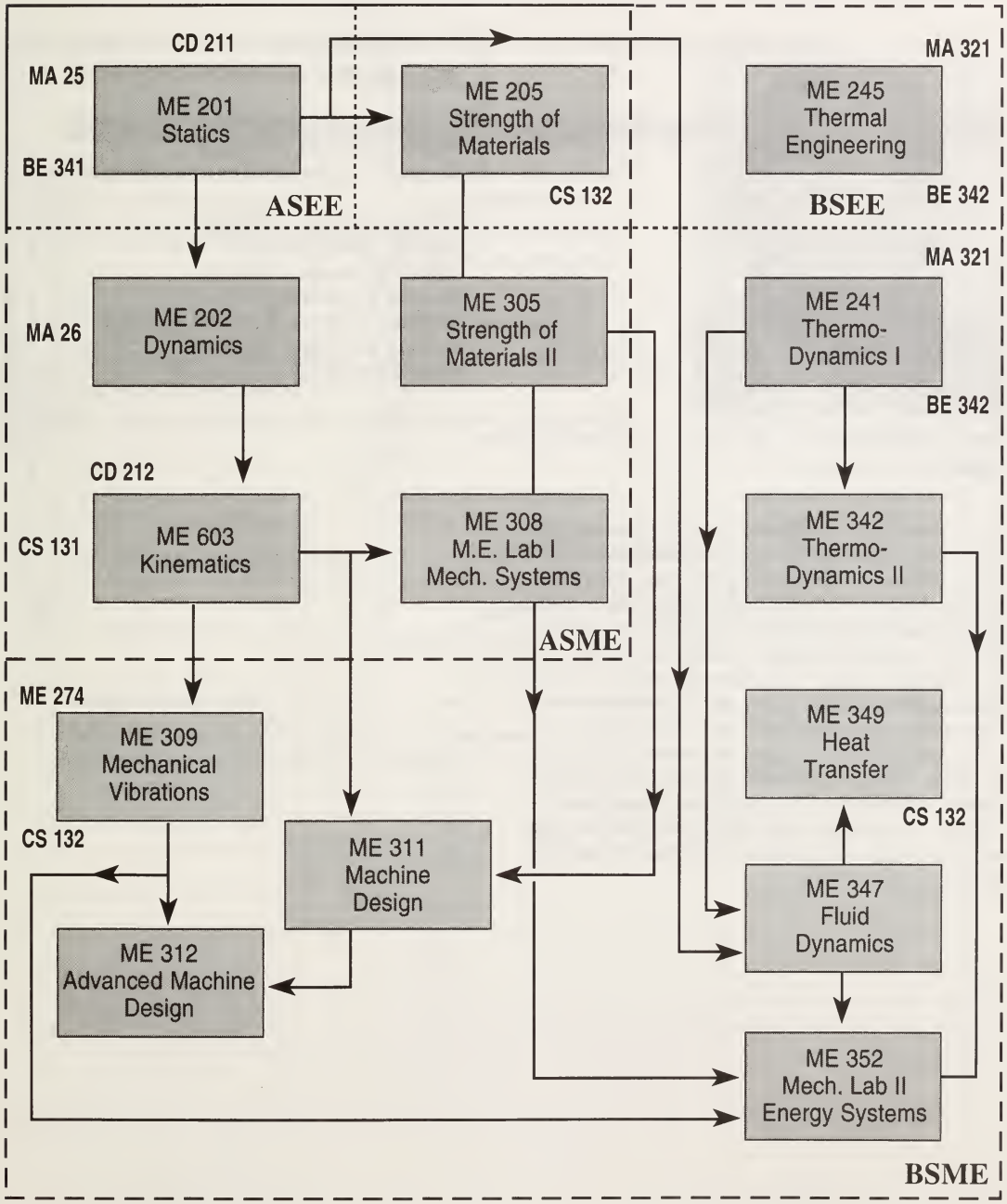
REQUIRED COURSES		PREREQUISITE
Physics: 9 Credits:		
BE 341	Physics-Mechanics	MA 26
BE 342	Physics-Heat, Light, Sound	BE 341
BE 343	Physics-Electricity	MA 227, BE 342
Mechanical Engineering: 16 Credits:		
ME 201	Statics	MA 25, BE 341, CD 211
ME 202	Dynamics	MA 25, ME 201
ME 203	Kinematics	MA 25, CD 212, ME 202
ME 205	Strength of Materials I	ME 201
ME 305	Strength of Materials II	ME 205
ME 308	Mechanical Engineering Lab I—Mechanical Systems (1)	BE 341, ME 203, ME 305
Electrical Engineering: 3 Credits:		
EE 210	Circuit Analysis I	MA 26, BE 343
Industrial Management: 3 Credits:		
PY 132	Industrial Management*	EC 11 or EC 12

TOTAL Degree Credit Requirements **72** Credits (does not include—preparatory program)

* For those who intend to matriculate beyond the Associate Degree, MA 321 (Differential Equations) should be substituted for Industrial Management PY 132. The MA 321 course will therefore be counted as part of the Associate Degree.

1995-96 Mechanical Engineering Course Progression

For major elective prerequisites, see course descriptions.



CONCENTRATION IN

Manufacturing Engineering, Industrial Management, and Materials

Albert Madwed
Director

Faculty

Albert Madwed, *Director*
Paul P. Botosani, *Professor*
Richard V. Kurczewski, *Associate Professor*

Philip D. Cracco. *Instructor*
John B. Davis, *Instructor*
James R. Savage, *Instructor*
Howard W. Shelnitz, *Instructor*
Stephen H. Silder, *Associate Professor*
Richard G. Weber, *Professor*
Robert Wojna, *Senior Instructor*

The Concentration in Manufacturing Engineering was organized in 1987 with 5 courses to provide an option to the Mechanical Engineering Program. These new courses MF 351, 352, 353, 354, 355 plus the courses in Industrial Management PY 132, BE 374, and the MF 390 seminar course offer an excellent program for the Manufacturing Engineering option. Many engineering schools have started manufacturing engineering programs since 1985. The BEI Manufacturing and Robotic Laboratory has modern equipment including robots, computers and modern programmable controllers. The combined department is assisted by an able staff of industrial professionals who have had many years of experience teaching at BEI.

1995-1996 BACHELOR OF SCIENCE DEGREE, CONCENTRATION IN

Manufacturing Engineering

Recommended Program of Study

(Option in Mechanical Engineering) First, Second and Third Year, Same as Mechanical Engineering

SEMESTER	FOURTH YEAR	FIFTH YEAR	SIXTHYEAR
FIRST	ME 241 Thermodynamics I EC 11 or EC 12 Economics ME 309 Mechanical Vibrations	EE 230 Electron Devices & Applications ME 311 Machine Design ME 347 Fluid Mechanics	BE 374 Engineering Economy MF 390 Engineering Seminar† MF 206 Engineering Materials
SECOND	EE 210 Electrical Circuits I BE 371 Industrial Management ME 342 Thermodynamics II	ME 349 Heat Transfer MF 352 Manufacturing Systems II ME 352 M.E. Laboratory II Energy Systems (1)	MF 354 Product and Process Design and Manufacturing MF 390 Engineering Seminar† MF 355 Product Planning, Control and Forecasting
THIRD	— Elective (History) MF 351 Manufacturing Systems I	MF 353 Manufacturing Processes and Materials EE 290 Introduction to Electrical Systems (2) EE 291 Basic Electrical Laboratory (1)	— (Fine Arts) Elective

All courses are 3 credit hours except as indicated in parentheses.

† Engineering Seminar MF 390 is taken during Semester 1 and 2 of the sixth year.

BACHELOR OF SCIENCE DEGREE, CONCENTRATION IN

Manufacturing Engineering

Tabulation of Degree Requirements

REQUIRED COURSES		PREREQUISITE
Mathematics: 15 Credits:		
MA 25	Calculus I	Precalculus, trig, or RM 103
MA 26	Calculus II	MA 25
MA 227	Calculus III	MA 26
MA 321	Differential Equations	MA 227
EE 224	Advanced Mathematics	MA 321
Computer Science: 6 Credits:		
CS 131	Computer Science I	MA 227, RM 117
CS 132	Computer Science II	CS 131
Chemistry and Materials: 9 Credits:		
BE 201	Chemistry I	Algebra or RM 101
BE 202	Chemistry II	BE 201
MF 206	Engineering Materials	BE 202
Engineering Graphics: 8 Credits:		
CD 211	Engineering Graphics CAD I (4)	
CD 212	Engineering Graphics CAD II (4)	CD 010 or CD 211
Liberal Arts: 21 Credits:		
EN 11	English I	
EN 12	English II	EN 11
EC 11 or EC 12	Economics	EN 11
HI 30	Foundations of Modernization in the West	
____	Religious Study Elective	
____	History Elective	
____	Fine Arts Elective	
Physics: 9 Credits:		
BE 341	Physics-Mechanics	MA 26
BE 342	Physics-Heat, Light, Sound	BE 341
BE 343	Physics-Electricity	MA 227, BE 342

(Continued on next page)

Required Courses for Manufacturing Engineering

(Continued from page 60)

REQUIRED COURSES		PREREQUISITE
Mechanical Engineering: 35 Credits:		
ME 201	Statics	MA 25, BE 341, CD 211
ME 202	Dynamics	MA 26, ME 201
ME 203	Kinematics	MA 026, CD 212, ME 202
ME 205	Strength of Materials I	CS 132, ME 201
ME 241	Thermodynamics I	MA 321, BE 342
ME 306	Strength of Materials II	ME 205
ME 342	Thermodynamics II	ME 241
ME 308	Mechanical Engineering Laboratory I—Mechanical Systems (1)	BE 341, ME 203, ME 306
ME 309	Mechanical Vibrations	EE 224, CS 132, ME 203
ME 311	Machine Design	ME 203, ME 306
ME 347	Fluid Mechanics	ME 201, ME 241
ME 349	Heat Transfer	CS 132, BE 342, ME 241, ME 347
ME 352	Mechanical Engineering Laboratory II—Energy Systems (1)	ME 308, ME 342, ME 309, ME 347
Electrical Engineering: 9 Credits:		
EE 210	Circuit Analysis	MA 227, BE 343
EE 230	Electron Devices and Applications	EE 210
EE 290	Introduction to Electrical Systems (2)	EE 230
EE 291	Basic Electric Laboratory (1)	EE 230
Manufacturing Engineering: 15 Credits:		
MF 351	Manufacturing Systems I	MA 321, EE 320, RM 117, BE 341
MF 352	Manufacturing Systems II	MF 351
MF 353	Manufacturing Processes and Materials	MF 352
MF 354	Product and Process Design for Manufacturing	MF 353
MF 355	Product Planning, Control and Forecasting	MF 354
Seminar: 6 Credits:		
MF 390	Engineering Design Seminar	ME 352, Final Year
Industrial Management: 6 Credits:		
ME 374	Engineering Economy	MA 26, EC 11 or EC 12
PY 132	Industrial Management	EC 11 or EC 12

TOTAL Degree Credit Requirements: **139** Credits

Engineering Graphics/CAD Component

Felice P. Rizzo
Director, Engineering
Graphics Program

The engineering graphics/CAD component of the curriculum is spread across all engineering disciplines. The courses in this component combine Manual Drafting Practices, Descriptive Geometry and the fundamentals of Computer Aided Drafting usage.

The student learns both basic drafting practices and CAD. Classes are kept small to allow for individual attention and the classes are taught by Engineering Professionals who have extensive experience in the field of Engineering Design and Manufacturing.

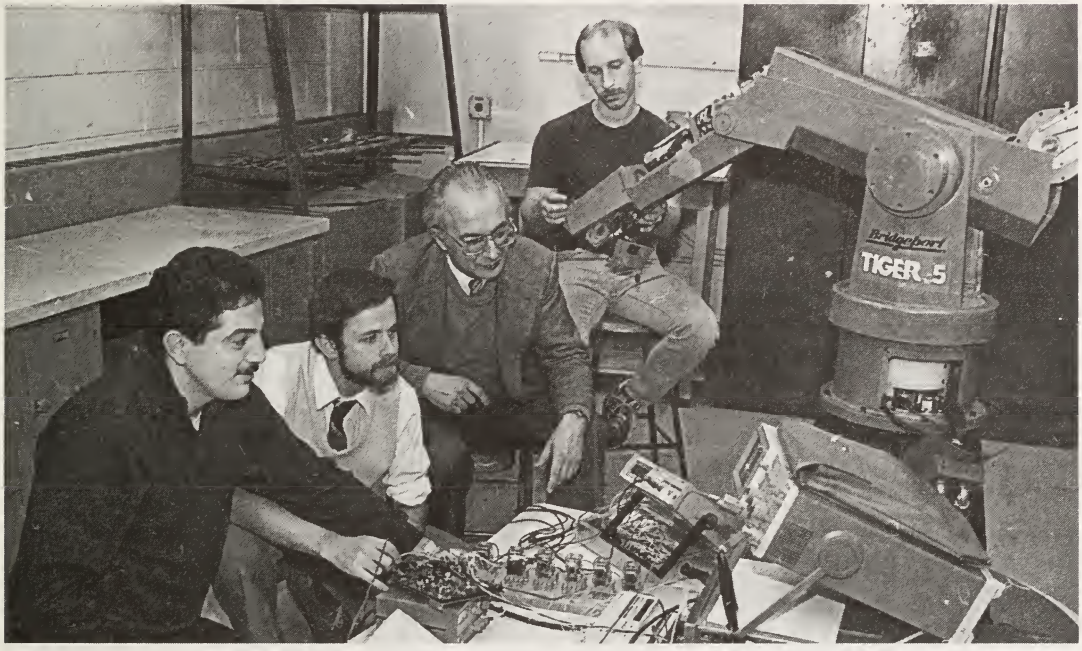
A well-equipped CAD lab is available for individual instruction at all levels up to and including 3D.

Distributed Systems

John Porter
Director, Distributed Systems

An option in Distributive Systems is offered in the context of the Information Systems Engineering degree program. The courses in this option are intended either to permit experienced main frame software programmers to enhance their skills, or to serve as electives for senior-level students (see page 46). For the students interested in earning a Client-Server Certificate, awarded through the School of Continuing Education, the required program of study is shown on page 49.

Engineering and Science Laboratories



The BEI Engineering and Science Laboratories have shown remarkable growth in the past few years. The laboratories provide strong support to the Electrical Engineering, Mechanical Engineering, Manufacturing Engineering and Physics, Chemistry and Engineering Materials programs.

BEI has six laboratories: Electrical, Mechanical, Robotics & Manufacturing, Information Systems Engineering, Physics and Chemistry. The laboratories include modern equipment to greatly enhance the student's laboratory experience. Every year 250-300 students participate in various activities in the BEI Labs.

Recent additions to the BEI labs include a refrigeration demonstration unit having a computer interface for data acquisition, and a modern tensile testing system (INSTRON) obtained as a result of a National Science Foundation grant. Several personal computers, and a computer controlled instrumentation system utilizing an IEEE 488 bus system are provided for data acquisition and analysis. BEI is committed to a long-term plan for the procurement of new and modern lab equipment.

Faculty

Dr. Richard Weber, *Associate Dean and Professor*
Dr. Paul Botosani, *Supervisor and Professor*
Joseph Hajla, *Lab Associate, Physics Lab*
Robert Wojna, *Laboratory Engineer—Special Projects*

Rudy Berndlmaier, *Lab Associate, Chemistry Lab*
Edward J. Corrella, *Senior Lab Technician*

BEI Laboratories provide the student with strong practical knowledge in instrumentation and engineering processes, and assist in preparing the student for a successful engineering career.

BEI Professional Development Programs

The Professional Development Division

Since merging with Fairfield University, Professional Development continues as a support program to the BEI School of Engineering.

Program Objectives

Professional Development programs are designed to provide the attendee with state-of-the-art developments in Engineering, Information Science and Computer Science technology. Courses, seminars and symposia are generally offered as Certificate programs. Academic recognition for completion of a Certificate program is acknowledged by the award of a Certificate awarded through the School of Continuing Education, plus CEU units.

Generally classes meet one evening a week, either at BEI or "on site" at a negotiated industrial location.

Where the course content meets the criteria for undergraduate credit, the student is afforded the opportunity to request credit status.

Don Adams, Sikorsky Aircraft Engineering Fellow 1992

The Continuing Education Unit (CEU)

The CEU (Continuing Educational Unit) concept provides individuals with a nationally established system of recognition for their efforts to update or broaden their knowledge or skill. One CEU is defined as 10 contact hours of participation in an organized continuing education experience under responsible sponsorship, capable direction and qualified instruction.

Current and Recent Course Offerings

One of the most popular courses offered is the Professional Engineer Examination Review course. The objective of the review course is to prepare applicants to take the Connecticut State examination for licensure as a Professional Engineer.

Other courses that have been offered are:

- Computer Aided Design and Drafting
- Introduction to Programmable Controllers
- Microprocessor based Robotics
- Robotics and the Automated Factory
- Geometric Tolerancing
- Telecommunications
- Fibre Optics
- Finite Element Analysis
- Strength of Composite Materials
- Environmental Compliance Regulations
- Machine Design
- Quality Control Technology

In-Plant Courses

In-Plant courses are designed to provide training programs for companies wishing to expand the skills of their employees. BEI develops the course content and, in cooperation with the employer, provides the planning and staffing to run the course.

Typical In-Plant courses that have been offered are:

- Computer aided Design/Drafting
- Strength of Composite Materials and Structures
- Geometric Tolerancing
- Finite Element Analysis
- Statistical Process Control
- Fundamentals of CNC technology

BEI WILL MEET THE NEED

The Institute's Professional Development Staff welcomes suggestions for courses and/or seminars that may serve the educational needs of the community. Call Associate Dean Weber, 254-4147.

Professional Development Adjunct Faculty

S. Baghai
R. Berndlmaier
D. Comiskey
F. DePonte
L. Feigin
H. Hoffman
N. Krebs
W. Kulpa
R. Kurczewski
R. Langanke
J. Laverriere
M. Parnes
R. Pellegrini
C. Pizzo
M Ramsey
R.W. Raulerson
R. Siddall

Engineering Course Descriptions

Note 1: Description of Mathematics, Physics, Chemistry and Liberal Arts courses required for the Engineering Degree see starting page 78.

Electrical Engineering

Circuit Design and Analysis Techniques

EE 210 — Fundamentals of Electric Circuits
(Prerequisites: MA 227, BE 343) 45-3
An introduction to the analysis of electric circuits including the definition of units, types of circuits and the basic laws is presented. Mesh and Nodal analysis based on Kirchoff's Laws are stressed with solution by algebraic and determinant techniques. Thevenin and Norton theorems are developed. Sinusoidal analysis including Phasor techniques are introduced. DC and AC power and its measurement are presented. Superposition, reciprocity and maximum power transfer theorems are developed and applied. The use of the computer as an aid in circuit analysis is introduced.

EE 212 — Computer Aided Circuit Analysis
(Prerequisites: MA 321, CS 131, EE 210) 30-2
Time and frequency domain analyses of passive and active circuits are examined using computer-aided circuit analysis tools. MICROCAP IV is the specific tool used to illustrate computer circiut analysis techniques. The Fourier expansion of complex waveforms are developed with MATHCAD used as the vehicle to perform the coefficient calculation.

EE 220 — Linear Circuit Analysis
(Prerequisites EE 224, EE 211 or EE 212) 45-3
The transient and steady state response of electrical circuits are studied using both classical and transform techniques. Circuits with inductance, capacitance, and resistive elements are studied for natural and forced response. Pole and zero concepts are introduced. One and two port network concepts are employed. Frequency response and pole zero plots are applied to circuits and systems. Fourier integral and transform techniques are studied. The LaPlace transform and its inverse are developed and applied to circuit problems. The computer is employed as a tool in the calculations for homework problems and design assignments MICROCAP IV is used to confirm the analyses.

EE 224 — Advanced Engineering Mathematics
(Prerequisite MA 321) 45-3
Introduction to applied mathematical techniques required for the solution of advanced engineering programs. Topics include Fourier integrals and series expansion: solution of linear differential transforms. Systems of linear equations by series and Laplace transforms. Complex numbers review of matrix solutions. Eigenvalue problems and iterative processes. Application of advanced mathematics in engineering problems.

EE 245 — Digital Electronics
(Prerequisite: EE 230) 45-3
This course covers both the theoretical and practical aspects of digital logic design, binary and hexadecimal number systems are presented. Logic gate symbols, Boolean expressions and truth tables are developed. Boolean algebra theorems are developed and simplified. Karnaugh mapping theory is developed and applied in a design project. TTL combinational circuits are studied followed by sequential logic systems. Programmable logic devices are introduced including programming techniques and basic state machine architecture. Design and laboratory projects apply the theory to practical problems.

EE 290 — Introduction to Electrical Systems
(Prerequisite: EE 210, EE 230) 30-2
A course designed primarily for the nonelectrical engineering student to introduce the concepts of AC systems, transformers, digital techniques and mechanical analogs.

EE 301 — Transform Analysis Techniques
(Prerequisite EE 220) 45-3
The concepts of linear time invariance and convolution are presented. LaPlace transform techniques are further studied and applied to circuits. Signal sampling concepts are investigated. The Z Transform is developed

and applied to a variety of electrical systems. Design assignments are used to augment class problems and apply the concepts to engineering problems. The computer is used to assist in the calculations. The laboratory is used to demonstrate the concepts and confirm student designs.

EE 302 — Feedback Systems Engineering
(Prerequisite EE 301) **45-3**
A course in basic feedback theory including system development and analysis. Stability criteria, sampling techniques and approaches to achieve stable closed loop performance are presented. The design of systems to meet given requirements are included to apply the concepts. The computer is employed in the analysis and the laboratory is used to demonstrate concepts and confirm design performance.

EE 320 — Introductory Vector Analysis
(Prerequisite MA 321) **30-2**
Scalar and vector definition, vector addition and multiplication divergence and curl, directional derivatives. Green's, Stoke's, and Gauss's theorem as applied to engineering problems.

EE 321 — Fundamentals of Electromagnetic Fields
(Prerequisites: EE 301 & EE 320) **45-3**
Electric and magnetic fields are investigated through the use of vector calculus. Techniques for the computation of fields and capacity for given charge distributions are outlined. The significance of Poisson's and LaPlace equations are studied with methods of solution. Components specifications and implementation alternatives are considered and design concepts to achieve the objective are developed.

Systems Design and Analysis

EE 304 — Digital Control Systems (Elective)
(Prerequisite EE 302, EE345) **45-3**
The design and analysis of digital feedback systems are developed. Signal conversion and processing techniques, Z transform analysis, transfer function block diagrams and state variable techniques are developed. Time and frequency domain analyses are employed to determine system stability and achieve optimum control. Design projects with computer simulation apply the techniques to engineering situations.

EE 325 — Microwave Systems Engineering (Elective)
(Prerequisite: EE 321) **45-3**
The fundamentals of Microwave theory are examined using Maxwell's equations. Plane waves in lossless and dissipative media are studied as well as propagation in ideal and lossy transmission lines. Wave guide theory is developed. Microwave resonators, filters, amplifiers and oscillators (TWT, klystron, magnetron) are investigated. Radiation via antenna systems is presented. Design problems to meet specific objectives apply the concepts in an engineering development experience.

EE 345 — Digital Computing Systems
(Prerequisites: EE 245) **45-3**
Fundamental operation of synchronous and asynchronous digital computing systems are studied and the techniques for implementing these designs are developed. Fundamentals of computer architecture and programming in assembly and machine language are presented. Problem statements and specifications are generated and implemented by programs on a representative microcomputer.

EE 346 — Microprocessor Hardware Control Systems (Elective)
(Prerequisite: EE 345) **45-3**
Techniques for hardware control through firmware and software are studied. Control systems are created using a variety of computing systems. Assembly code design and microprocessor system development on the personal computer are emphasized. System specification, alternate technique evaluation and analysis of performance are illustrated in design problems. Software life cycle costs are explained.

EE 350 — Communications Systems
(Prerequisite: EE 301) **45-3**
An introduction to analog and digital communications systems analysis including the mathematical treatment of the effects of various noise sources on signal masking. Modulation and demodulation techniques (AM, FM, PM & pulse code) are developed. Design problems are employed to permit the student to apply the concepts to meet system objectives.

EE 352 — Digital Communications Systems (Elective)
(Prerequisite: EE 301, EE 245, EE 350) 45-3
This course is designed to explore current digital communication features. Fundamentals of sampling principles and channel coding are utilized to develop standard digital modulation techniques (ASK, FSK, PSK, PCM, and delta modulation). Multiplexing and multiple access networks are also analyzed. Techniques are applied in design assignments with students designing to meet specified performance.

EE 354 — Electro-optical Data Communications Systems (Elective)
(Prerequisites EE 301, EE 332, EE350) 45-3
The theory and basic elements of fiber optic communications systems are studied. Fundamentals of transmission in optical fibers are developed. Source component operation including light emitting diodes and solid state lasers are studied. Coupling element and detector devices are investigated. Modulation and demodulation techniques are analyzed and overall loop performance determined relative to bandwidth and signal to noise ratio. Design problems enhance student understanding.

EE 360 — Electrical Machine Analysis (Elective)
(Prerequisite: EE 301) 45-3
Basic equivalent circuit models are developed for various electrical machines including transformers, DC generators & motors, and induction and synchronous AC motors. The models are applied to determine transient and steady state machine performance. Design assignments to apply the concepts are reinforced by laboratory evaluation.

EE 365 — Power Systems Analysis (Elective)
(Prerequisite: EE 301) 45-3
An introduction to the analysis of high voltage power systems and components including the study of AC and DC transmission lines, power transformers and synchronous generators. Methods of analysis include system models, network calculations, symmetrical components, non-symmetrical faults and power system stability.

EE 370 — Instrumentation Systems Engineering (Elective)
(Prerequisites: CS 131, EE 332, EE 380) 45-3
A course outlining the development of instrumentation systems including the basics of transducer technology, signal processing, analog to digital and digital to analog signal conversion and data transmission. Noise suppression and modulation techniques are developed. Instrument control and data gathering via the IEEE 488 bus are developed and applied to a system design for evaluation in the laboratory.

EE 376 — Electrical System Design Analysis
(Prerequisite: EE 230, EE 211 or EE 212) 45-3
The impact of component fabrication tolerances and temperature effects on system performance are studied with particular emphasis on the way these factors must be considered in circuit and system design. Techniques for analysis (including statistical methods) are presented and applied to specific examples. Student designs are employed to apply the approaches to typical engineering design problems. The concepts of reliability engineering and fault tolerant designs are introduced. The computer is used to assist in the evaluations.

Electrical Circuits and Devices

EE 230 — Electron Devices and Applications
(Prerequisite EE 210) 45-3
The physical operation of semiconductor junctions are studied and applied. The operation of both ideal and actual diodes are developed and applied to circuits for basic rectification and AC to DC power conversion. Bipolar Junction Transistor (BJT) and Field Effect Transistor (FET) devices are investigated and their operation applied to amplifier circuits. Biasing techniques are analyzed with respect to power efficiency and circuit stability. Device models are created and the concept of "h" parameters derived to assist in performance analysis. Frequency response limitations and coupling techniques for multistage amplifiers are developed. Techniques for laboratory investigation of performance are presented.

EE 330 — Electronic Amplifiers & Applications
(Prerequisites EE 211 or EE 212, EE 230) 45-3
A detailed analytic study of electronic amplifier performance and practical applications. Various BJT and FET amplifier configurations are studied with respect

to frequency response (Bode Plots) and the gain/bandwidth concept is developed. The impact of noise on amplifier performance is presented. Frequency compensation techniques are outlined. Integrated amplifier circuits (operational amps) are investigated and applied to a variety of applications. Feedback techniques are investigated. Design assignments are employed to apply the concepts to practical engineering problems.

EE 332 — Electronic Engineering
(Prerequisites EE 245 & EE 330) 45-3
The application of electron devices to a variety of applications are presented and analysis techniques developed for student to apply in several design assignments. Among the circuits studied are oscillators and waveform generators, passive and active filter circuits, modulators and demodulators, comparator and trigger circuits, D to A and A to D converters, sample and hold circuits, phase lock circuits, power supply circuits and signal conditioning circuits. Various computer analysis programs are employed for the analyses and the laboratory is used for the confirmation of designs.

Electrical and Electronic Laboratories

EE 280 — Electrical Laboratory
(Prerequisites: EE 211 or EE 212, EE 230) 45-1
A laboratory course stressing the fundamentals of circuit theory and electronics. Experiments include verification of network analysis techniques including mesh and nodal equations, theorems (Thevenin, Norton, superposition, etc.) maximum power transfer and the performance of basic reactive circuits. Diode and transistor characteristics are prepared and applied in basic electronic circuits. Single and polyphase power measurements are made. Students develop measurement techniques to achieve the experimental objectives. An ethics component explores the meaning of professionalism and engineer's societal responsibilities.

EE 291 — Basic Electrical Laboratory
(Co-requisite EE 290) 30-1
A laboratory course designed for the nonelectrical engineer to acquaint the student with the fundamental principles of circuits, electronics (analog and digital), and electrical systems.

EE 380 — Intermediate Electrical Laboratory
(Prerequisites: EE 280, EE 302 & EE 332) 30-1
A laboratory course designed to reinforce the principles of electrical systems and circuits including feedback, electronic systems, and transform analysis techniques. Students are required to develop the details of the experiments and employ the computer for data processing and report preparation. Conclusions and cause for variations between theory and experiment must be presented. The engineering ethics module examines case studies to further understand the engineer's societal responsibility.

EE 382 — Advanced Electrical Project
(Prerequisite: Departmental approval of project proposal following completion of nonelective EE courses (including EE 380) & at least one major elective.) 30-2
A design course placing major emphasis on individual student creativity. The student (working with a faculty mentor) develops the project objectives and performance specifications. At review meetings the student presents progress on the project including analytic and experimental results to date. A final report and presentation demonstrates the accomplishments and significant conclusions. Faculty involvement seeks to create a realistic engineering development environment. Note: The student may take this course as "independent study" once the prerequisites have been met.

Engineering Graphics and CAD

CD 010 — Computer Aided Drafting (CAD)
(Prerequisite 301 or equivalent) 30-1
Overview of CAD systems Basic Functions using IBM compatible computers. Getting started and floppy disk storage. Course covers functional hierarchy, functional keys, menus, prompts, filing a model, calling a model Elements include points, lines, circles, windowing, relimiting, cornering, offsetting, line types, arrows, notes, and dimensioning Application of CAD to engineering drawing. For those who have credit for 301 and are advancing to 312

CD 111 — Technical Graphics—CAD I 45-3
Basic course in engineering technology graphics coordinated and taught simultaneously with CAD. Board work, technical sketching.

CD 112 — Technical Graphics—CAD II (Prerequisite CD 111or CD 010 with 301 equivalent) 45-3
Continuation of 321, technical graphics with introduction to descriptive geometry and advanced CAD.

CD 211 — Engineering Graphics — CAD I 60-4
Basic course in engineering graphics coordinated and taught simultaneously with CAD application Board work covers geometric constructions, theory of orthographic projection, visualization, dimensioning, tolerancing, sections, screw threads and fasteners, assembly drawing, isometric tolerancing Technical sketching is stressed For description of CAD Port on see course 310.

CD 212 — Engineering Graphics — CAD II (Prerequisite CD 211 or CD 010 with 301 equivalent) 60-4
Introduction to descriptive geometry with advanced computer aided drafting/ design. Course builds on concepts and functions of 311 and introduces SPLINE curves, functions for GROUP operations, DETAIL for geometry transfer and standard libraries, the AUX-VIEW for orthographic view projection. Utilization of ANALYSIS for complex section properties, concepts of NO-SHOW, and a final design project complete the course.

CD 213 — Graphic Science 8 Design (3-D CAD) (Elective) (Prerequisite CD 212 or equivalent) 30-2
Introduction to 3-D CAD using CADKEY and IBM compatible PCs. 3-D design topics including Display Manipulation, Level Management, View Coordinates and World Coordinates, Construction Modes, Depth, Construction Planes. Wire frame model construction. Introduction to solids. Process and design for the real world.

Information Systems Engineering

IC 209 — Probability and Statistics (Prerequisite MA 26 or equivalent) 45-3
Probability, random variables, discrete and continuous probability distributions, estimation, hypothesis testing, linear regression and correlations.

IC 222 — Simulation Techniques (Prerequisites MA 321, IC 209 & CS 132) 45-3
The use of simulation methods for the analysis and design of various types of systems employing computer techniques. General purpose languages for simulation and use of discrete and continuous simulation languages for probabilistic and analog systems.

IC 227 — Object Oriented Programming Using C++ (Prerequisite CS 133) 45-3
Introduction to object oriented methodology and abstract data types. Discussions in polymorphism and data encapsulation. Examples of using object oriented programs in situations, as well as large system integration by object oriented methodology.

IC 250 — Intro to Information Systems Engineering (Prerequisite CS 133) 45-3
Components of Information Systems; Inputs, Outputs, Storage and Processing; Data and Information Signals; Conversion of signals from one physical form to another; Modems; Magnetic, electrical and optical storage; Transmission media; Transmission coding: Networking.

IC 326 — Computer Architecture II (Prerequisite CS 322) 45-3
Memory management; application of computer and communications systems Measurement techniques. Simulation and Analytical techniques. Evaluation of computer capacity. Developing system specifications.

IC 340 — Introduction to Client Server Technology
Client-Server technology based on personal computers and work stations represents a radically different environment for the professional software developer. This course is an introduction to the new paradigm, focusing on the DOS and Windows operating system, the concepts of Graphical User Interfaces and event-driven programming, and the use of tables and queries. Microsoft's ACCESS is used as the basis for classroom demonstrations and exercises. Intended as an introductory course for professional programmers whose training and experience is on mainframe and mid-range computers.

IC 341 — Object Oriented Design/Relational Database Design
Discusses concepts of Object Oriented Design and Relational Database Design, the foundations of client-server software development. Covers file design and data normalization, referential integrity, database triggers, and event-driven program design. CASE Tools will be used to design a useful application. Intended for technical managers, systems designers of enterprise level client-server applications, and programmers of client-server applications. Laboratory included.

IC 342 — Implementing Client-Server Infrastructure
The steps required to build and maintain the data infrastructure for client-server applications, including the physical design and implementation of the database, the use of the database to meet the informational needs of a client-server system, and the installation, operation, and maintenance of RDBMS software, Oracle and Microsoft's SQL Server will be used as the basis for classroom demonstrations and exercises. Specific topics include SQL (Structured Query Language), SQL utilities, alternative front-end development tools, the use of a RDBMS, hardware and software tuning for maximum performance, backup and recovery of data, security, and control systems. Students will perform a number of hands-on exercises using a SQL Server running on Windows NT. Laboratory included.

IC 343 — Programming Client-Server Applications
An in-depth treatment of application programming in a client-server environment. Powerbuilder and Microsoft's SQL Server are used as the application development tools to illustrate current techniques for developing applications. A pragmatic hands-on approach, with students developing several small programs. The examples will provide the student with practical experience in all of the major areas of a client-server application development. Intended for designer and programmers of commercial client-server applications. Laboratory included.

IC 344 — Event-Driven Programming for the Windows Environment
Event-driven programming is the new paradigm for application development using the windows operating system. Microsoft's Visual Basic will be used as the application development tool to illustrate the new system. Microsoft's Visual Basic will be used as the application development tool to illustrate the new techniques for software development. At the completion of this course, students will understand the event-driven programming model, and will be able to build forms, write procedural code, and put forms and code together to build custom applications. In addition the student will learn how to access data via data controls, and how to extend the environment using third-party tools. Intended for designers and programmers who are developing systems in the Windows environment. Laboratory included.

IC 355 — Database Management Systems (Prerequisite CS 133) 45-3
Data formats, Organizations, Representations and structures. Design and analysis of searching, sorting and other algorithms Data management systems; Types of Data Base systems; Logical data models and Database usage. Relational databases.

IC 360 — Communications Networks (Prerequisite IC 350, EE 345) 45-3
Intro to computer communications networks, including network architecture and protocols, elements of networks, data link switching, routing and end to end protocols, local area networks, interfacing digital systems, buses, parallel and serial interfaces and standards. Pricing exercises evaluating alternative service costs Integrated services digital network (ISDN), Systems network architecture (SNA).

IC 380 — Software Engineering Techniques (Prerequisite IC 355) 45-3
Software design and testing techniques. Structured design and CASE techniques. Design approaches including object oriented, Data flow oriented, Data structured and Real time Unit and system integration and testing. Test documentation.

IC 381 — Software Engineering Practices (Prerequisite IC 355) 45-3
Software Engineering management practices. Project planning, Quality Assurance, Test plan, Maintenance process and configuration management. Developing software system specifications. Applications software to supplement the lecture discussions.

IC 385 — Systems Engineering
(Prerequisite IC 360, IC 380) 45-3
Engineering application of System analysis to practical problems; optimal solutions; Linear programming, Simulation and Statistics.

IC 390 — Computer Applications Laboratory
(Prerequisite IC 360) 30-1
A laboratory course stressing the fundamentals of information systems design, management and maintenance. An engineering ethics component highlights its importance in 'real life' situations. Experiments focus on practical engineering applications that include topics such as the effects of noise on system operation, shielding, bus performance, local area networks, multimedia, computer performance and data base exercises.

IC 392 — Senior Information Systems Engineering (ISE) Project 45-3
A capstone design course emphasizing student creativity and organizational abilities. The student works with a faculty mentor to select a project that is representative of a realistic information systems engineering development task. The student prepares design goals, executes a literature search, prepares an in depth analysis, and develops the experiment. A final report and presentation demonstrates the student's accomplishments. The student meets with the mentor on a regular basis to discuss the project's status and to review alternative solutions to problems. This course may be taken as "independent study."

Manufacturing, Materials and Management Engineering

Materials

MF 106 — Materials and Processes I 45-3
Introduction to the materials used throughout industry, including a study of the characteristics, properties, applications, extractions, and alloys. Primary metal working processes (foundry, heat treatment, hot and cold working, etc.) are introduced together with the economics of their applications. Study will include ferrous and non-ferrous metals and non-metallic materials (fiber-reinforced plastics (FRP), elastomers, and ceramics. Time permitting, at least one field trip is planned. (DOES NOT MEET REQUIREMENTS FOR BS DEGREE MFG. ENGINEERING)

MF 107 — Materials and Processes II 45-3
A continuation of an introductory course to "engineered" materials, their properties, and methods of joining, cutting, machining, and forming into products. Both common and advanced techniques used in manufacturing processes will be examined as unusual or "exotic" materials enter the mainstream of materials to be considered competing with traditional (metallic) materials. Emphasis will be on the latest methods of cutting and joining. Time permitting, at least one field trip (and/or) speaker is planned. (DOES NOT MEET REQUIREMENTS FOR BS DEGREE MFG. ENGINEERING.)

MF 206 — Engineering Materials
(Prerequisite BE 202) 45-3
Study of materials science and engineering. Includes engineering properties of metals, polymers, ceramics, semiconductors, and magnetic materials. Relationships of materials to service and design applications are covered. Laboratory sessions are included.

MF 307 — Advanced Engineering Materials
(M.E. students only)
(Prerequisite MF 206)
Expands beyond Engineering Materials 206 (previously 204) to detail and include topics such as heat treatments, transformation diagrams, phase diagrams, alloy and microstructures. Emphasis is directed toward the aspects of metallurgy, engineering design and industrial processing. Laboratory sessions are included.

MF 310 — Polymer Chemistry (Elective)
(Prerequisites BE 201 & BE 202) 45-3
This descriptive course is intended to acquaint the student with the classes, properties and utility of polymers. Topics to be presented include: history of polymer chemistry, addition and condensation polymers, copolymerization, characterization of polymers, fibers and elastomers, and water soluble polymers as time permits. Emphasis is on compositions and properties required for specific application.

Manufacturing

MF 351 — Manufacturing Systems I 45-3
MF 352 — Manufacturing Systems II
(Prerequisites MA 321, EE 320, RM 117, BE 341, or permission of instructor) 45-3
This two course sequence will introduce to the student the basic methods of analysis used in automation and modem production systems, including principles and procedures related to design implementation, control and operation of manufacturing systems. Topics include F.M.S., Robotics, transfer lines, NC, CNC, CAD, CAM, cost, quality, materials, and material handling.

MF 353 — Manufacturing Processes and Materials
(Prerequisite — MF 352 or permission of instructor) 45-3
This course will provide basic knowledge of conventional and non-conventional manufacturing processes, as well as the design, engineering, and economic properties of conventional and non-conventional material. Considered are the influence of processing on material structure and properties and the role of processing in design of product. Included are processes such as casting, forging, sheet metal fabrication, plastic forming, injection of plastic and metals, powder metal joining, machining.

MF 354 — Product and Process Design for Manufacturing
(Prerequisite — MF 853 or permission of instructor) 45-3
This course will consider many of the modern methods and tools for designing products and processes for manufacturability. Topics include: design for production; influence of materials on design; material handling; automatic inspection and instrumentation; tools, methods and techniques for product design and analysis.

MF 355 — Product Planning, Control and Forecasting
(Prerequisite — MF 854 or permission of instructor) 45-3
This course will consider modern operations of both manufacturing and service sectors of the world economy. Topics to be included are: concepts of planning and control of production systems; design of control systems and operation planning; demand forecasting; inventory control, operations planning; scheduling; dynamic control; production planning of product mixes; economical lot sizes and vendor supplies. Where possible, computer models will be used.

Management Engineering

MF 371 — Industrial Management
(Cross reference as PY 132)
(Prerequisite EC 11 or EC 12) 45-3
Development of management thought, nature and functions of management, role of the manager, setting goals and policies, planning and decision making, Organizational behavior, individual and group behavior, motivation and morale leadership. Formal organization theory and structure, staff concepts, delegation and focus of decision making. Communications and control systems.

BEI 902 — Engineering Economy
(Prerequisites MA 26 & EC 11 or EC 12) 45-3
The fundamental concepts of engineering economic analysis are presented for engineers. The tools required to resolve engineering problems by the application of the criteria for economic efficiency are developed. The exact methods of present worth analysis, annual cash flow analysis, and rate of return analysis as applied to engineering problems are taught. Economic analysis is based on the concept of equivalence and the derivation of compound interest formulas. The realistic and complex effects of depreciation, income tax, and inflation on economic analysis are demonstrated. Six computer programs for use on IBM-PC, -XT or compatibles are used to solve a variety of engineering economic analysis problems.

BEI 915 — Business Law 1
(Cross reference as BU 11) (Elective) 45-3
A course designed for the engineer who has had no practice in solving legal problems and who needs a background in the legal complexities confronting the engineer in our society. Such legal areas as contracts, torts, agency, patent and trademark rights, environmental law, along with a discussion of the ethical and professional responsibilities of engineers and architects will be discussed in straightforward language uncomplicated by legal jargon. The necessary legal reasoning, legal procedures, ethics, etc. are examined from the viewpoint of the engineer as employee, agent, manager or executive.

BEI 916 — Business Law II (Elective)
(Prerequisite BE 385) 45-3
A continuation of Business Law 915. Negotiable instruments, sales, real and personal property, security transactions, partnerships and corporations, copyrights, trademarks and patents, ethical and legal responsibilities of engineers.

MF 385 — Environmental Law
(Elective) 45-3
An overview of the current body of law known as "Environmental Law" by analysis of caselaw, statutes and administrative regulations. Discussion of administrative agencies and the review of their decisions. Acts to be discussed include the Clean Air Act, Clean Water Act, Comprehensive Environmental Response, Compensation and Liability Act. Resource Conservation and Recovery Act and the National Environmental Policy Act. Discussion of technological and economic feasibility defenses and available remedies. Overview of land use considerations that concern the protection of natural resources.

Engineering Seminar

MF 390 — Engineering Design Seminar
(Prerequisite — student required to have completed all courses through fifth year. Preferably one year prior to expected graduation.) 90-6
A "capstone" course in which students work in teams choosing advanced projects which emphasize the engineering design approach. Literature search, synthesis, and in depth analysis and experimentation are required. Frequent presentations to faculty and peers are required of each member of the team. To enable successful presentation skills, the student will be required to take instruction in effective communication during the two term course. An oral presentation, written report, and working models culminate the seminar. This is a two term continuous course beginning in the fall term.

Mechanical Engineering

Solid Mechanics

ME 201 — Statics
(Prerequisites MA 25, BE 341 & CD 211) 45-3
Introduction to the fundamental concepts of rigid body mechanics, using vector representation of forces, free-body diagrams and conditions of equilibrium in two-and-three dimensions. Covers force analysis of trusses, frames and simple machines with frictional forces included. Analysis by computer is emphasized along with the development of problem solving techniques.

ME 202 — Dynamics
(Prerequisites MA 26 & ME 201) 45-3
Analysis of forces utilizing Newton's second and third laws of motion: theory of kinetics of particles and linkages under rectilinear and curvilinear motion: mathematical and graphical methods; review of work, energy and power; momentum and impact.

ME 203 — Kinematics
(Prerequisites CS 131, CD 212 & ME 202) 45-3
The presentation of kinematic principles applied to basic machine mechanisms: graphic and analytic analysis of velocities and accelerations in transmission of motion by direct contact, linkage, gears, sliding block mechanisms, cams and belts. Fundamentals of analyzing and developing engineering designs.

ME 205 — Strength of Materials I
(Prerequisites ME 201) 45-3
Concept of stress; pin loaded joints; factors of safety; basic stress-relations in two dimensions; thermal strains; indeterminate problems; stress concentration factors; torsion; shatting; coupling and related applications; theory of bending, including normal and shear stresses; eccentric loading; transverse shear stresses; principle stresses and Mohr's circle; theories of failure; thin walled pressure vessels.

ME 306 — Strength of Materials II
(Prerequisite ME 205) 45-3
Shear and Bending moment diagrams; elastic curves; deflection of beams of integration and area moment methods; use of singularity functions: indeterminate beams; the principle of superposition; energy methods; elastic strain energy; impact loads; deflection by work-energy method; Castigliano's theorem; column theory. Formulation of designs into mathematical models stressing computer-based analysis.

ME 308 — Mechanical Engineering Laboratory — Mechanical Systems
(Prerequisites BE 341, ME 342 and ME 306) 45-1
An integrated educational approach to engineering experimentation which incorporates the concepts of statics, dynamics, kinematics and strength of materials. Includes the fundamentals of electronic instrumentation for measurement of engineering properties and data acquisition based on statistical error analyses. Data documentation and report writing are emphasized for product design testing and validation. Ethical approaches to data reporting discussed with case studies.

ME 309 — Mechanical Vibrations
(Prerequisites ME 274, CS 132 & ME 203) 45-3
Theory of mechanical vibrations and methods of attenuating detrimental effects Kinematics of periodic motion, linear single degree of freedom, and critical speed phenomena. Forced harmonic vibrations. Critical and subcritical damping Multidegree of freedom systems, free and forced vibration. Matrix methods and operational methods for solution of vibration problems Study of LaGrangian Methods to formulate complex vibration problems. Emphasis is on digital computation techniques.

ME 311 — Machine Design
(Prerequisites ME 203 & ME 306) 45-3
Elements of machine design applying the principles of kinematics, dynamics and strength of materials. Student creativity is developed through open ended problems and the formulation of design methodology and specifications. The use of alternative solutions are encouraged based on realistic design concepts and constraints.

ME 312 — Advanced Machine Design
(Prerequisites ME 309 or ME 311) 45-3
Advanced study of mechanical designs emphasizing the process of developing creative solutions through conceptual analysis and synthesis. Instruction is based on design projects emphasizing organization and management. Each project entails risk and financial analysis as well as computer simulations and computations. Engineering ethics is presented with case studies.

ME 318 — Introduction to the Finite Element Method of Structural Analysis (Elective)
(Prerequisites MA 227, CS 131 & ME 205) 45-3
Applications of Finite Element Analysis in modern engineering. Matrix analysis of structures. Stiffness matrix formation. Energy methods. Computer techniques for finite elements. Review of commercial finite element programs Students will solve problems both manually and with the use of a computer program.

ME 319 — Finite Element Analysis II (Elective)
(Prerequisite ME 318) 45-3
An introduction to advanced concepts in Finite Element Analysis. An introduction to the concepts of dynamics as applied to structures. The principals of mode shapes and their corresponding frequencies. Time history analysis will include modal superposition, direct integration and response spectrum methods. Random vibration analysis will be introduced. The Finite Element Analysis will be extended to problems in heat transfer including both steady state and transient analysis, conduction, convection and radiation modes will be covered.

ME 325 — Practical Powder Metallurgy (Elective)
(Prerequisites MF 206 or MF 307) 45-3
Introduction to net shape forming technology using particulate materials (P/M) The fundamental principles of the process, the physical and mechanical behavior of particulate materials, and the practical applications in design are presented. The emphasis is placed on the powder metallurgy, composite materials and advanced particulate materials. A hands-on project is incorporated in the course to allow students to experience the P/M process and understand the characteristics of the P/M materials.

ME 327 — Engineering Fracture Mechanics (Elective)
(Prerequisites MF 206, ME 306) 45-3
Design, analysis and test comparing conventional design with fracture mechanics approaches. Applications of fracture mechanics designs, selection of materials and failure analysis.

ME 330 — Strength of Composite Materials (Elective)
(Prerequisites EE 224, ME 205) 45-3
Classical lamination theory. Introduction to the theory of elasticity that expresses the relationship between the laminate strain tensor and the stress field throughout the laminate. Single-layered isotropic, specially orthotropic, and anisotropic layers. Symmetric laminates; multiple generally orthotropic layers. Properties of the A, B, and D stiffness submatrices as partitioned from the laminate general stiffness matrix. Failure theories; causes of delaminations. Stress analysis of multiple symmetric balanced laminates. Computer programs are applied to stress analysis. Design project and laboratory projects are required.

Energy

ME 241 — Thermodynamics I
(Prerequisites MA 321 & BE 342) 45-3
For Mechanical Engineers, classical macroscopic thermodynamics with engineering applications. Conservation of energy for open and closed systems. Equations of state and pure substances. First and second law of thermodynamics, including internal energy, enthalpy, entropy. Tables of thermodynamic properties. Ideal gases Conservation of mass. Elements of cycle analysis.

ME 245 — Thermal Engineering
(Prerequisites MA 321 & BE 342) 45-3
A course designed for the non-mechanical engineering student. Thermodynamic Fundamentals. Conservation of Energy. Equations of State. First Law. Second Law and Applications to Information theory. Internal Energy, enthalpy and entropy. Heat Transfer: Conduction, Convection and Radiation. Fluid Flow, Dimensional Analysis. Extended Surfaces. Applications to Cooling of Electronic Equipment in Electrical Systems.

ME 342 — Thermodynamics II
(Prerequisite ME 241) 45-3
A continuation of ME 241. Mixtures of ideal gases and vapors, psychrometry, and combustion analysis of common power generating, refrigeration, and air conditioning cycles. Figures of merit, including thermal efficiency. Continuity and momentum equations for steady, one-dimensional frictionless flow. Basic energy relations for turbomachinery. Fundamentals of compressor and turbine design. Application and synthesis of design using thermodynamic principles.

ME 346 — Energy Conversion (Elective)
(Prerequisite ME 241) 45-3
Selected topics in energy conversion, including solar energy; propulsion; internal combustion engines; battery power; heat pumps; classic and novel power and refrigeration cycles; system analysis; system economics; environmental considerations.

ME 347 — Fluid Mechanics
(Prerequisites ME 201 & ME 241) 45-3
Incompressible fluids at rest and in motion Introduction to compressible fluids: fluid statics: Bernouli's theorem and the principle of similarity Flow through orifices, nozzles, and pipes Flow through open channels; energy relationships as applied to pipe lines, pumps and turbines. Acceleration of fluid masses; fluid dynamics the momentum theorem; turbomachinery.

ME 349 — Heat Transfer
(Prerequisites CS 132, BE 342, ME 241 & ME 347) 45-3
One and two-dimensional heat conduction, including solutions for finned surfaces and solutions for transient problems. Convection heat transfer in laminar and turbulent flows. Fundamental radiation concepts. Laws of thermal radiation Radiation exchange geometrical factors and Oppenheim network methods Heat exchangers and electrical analogies. Emphasis is placed on design solutions using computer analysis and synthesis.

ME 352 — Mechanical Engineering Laboratory II — Energy Systems
(Prerequisites ME 308, ME 309, ME 342 & ME 347) 45-1
Classroom and experimental work assigned on a project basis. Experimental procedures based on statistical analytical methods applicable to the computer simulation and evaluation of mechanical designs. Experimental work includes heat transfer, fluid dynamics, rotational vibrations and feedback control.

ME 360 — Internal Combustion Engines (Elective)
(Prerequisite ME 342) 45-3
The theory of internal combustion engines will be presented including the types of engines; gas cycles; fuel air and combustion thermodynamics; fuel air cycles; engine performance.

Mechanical Systems

ME 274 — Analytical Methods for Mechanical Engineers
(Prerequisite EE 224 — Advanced Engineering Mathematics) 45-3
Characteristics of systems of linear algebraic equations; study of determinants, use of Cramers Rule, introduction to linear algebra. Use of computer code MATHCAD. Solution techniques by Gauss elimination, iteration, and matrix methods. Eigenvalue/eigenvector applications to boundary value problems in engineering. Orthogonality principle. Approximate solution methods and optimization by Rayleigh, Ritz, and Galerkin techniques. Introduction to probability and statistical theory. Design project.

ME 371 — Mechanical Feedback Control Systems (Elective)
(Prerequisites ME 309 or EE 301) 45-3
The dynamics of machinery extended to mechanical automatic control systems. Basic elements of servomechanisms with comparison of electrical, hydraulic, and mechanical systems. Analysis of the physical elements for control and feedback using transfer functions. Transient response and stability analysis. Practical applications to mechanical designs are presented.

ME 377 — Robotics and Manufacturing Systems (Elective)
(Prerequisites MA 227, BE 341, ME 202, ME 203 or electrical equivalent) 45-3
Combined classroom and laboratory introduction to Automation, Robotics, the Automatic Factory and the Third Industrial Revolution. Historical development of Automation. Theory and Application of Robotics Introduction to Manufacturing Systems

ME 378 — Robotics and Manufacturing Systems II (Elective)
(Prerequisite ME 377) 45-3
Combined classroom and laboratory continuation of ME 377 (667). Engineering studies of the components of the future automatic factory. Engineering studies of the future automatic factory system.

Course Descriptions

Note 1: Required and selected courses in Mathematics, Physics, Chemistry and Liberal Arts required or suggested for the Engineering Degree. For complete department descriptions refer to Catalague of College of Liberal Arts and Sciences.

Note 2: For Engineering Course Descriptions see page 71.

Note 3: Course numbers in use prior to 1994 shown in parenthesis.

BE 201 — Chemistry I
(Prerequisite RM 101) 45-3
The study of chemistry introduces the fundamental concepts of matter including physical measurements, periodic classification of elements and compounds; energy and weight relationships; gas laws; liquids and solids, and oxygen and hydrogen. Laboratory sessions are held concurrent with lectures.

BE 202 — Chemistry II
(Prerequisite BE 201) 45-3
A study is made of water and solutions including concentration of solutions; chemical kinetics; equilibrium; ionic, equilibrium; electrochemistry and oxidation-reduction type reactions. Study continues with nuclear and organic chemistry Laboratory sessions are held concurrent with lectures.

RM 117 — Introduction to Computers and Their Engineering Applications
(Prerequisite RM 101 or equivalent, coreq. RM 102) 45-3
An introductory course in computers and emphasizing engineering applications. An introduction to basic hardware and software components, such as CPU, Memory, Input/Output, Communications and Operating Systems. Students are introduced to several types of popular software packages, including word processing, data base management, spreadsheet and Math-Cad. Assignments are given using software packages.

CS 131 — Computer Science I
(Prerequisites MA 227, RM 117 or equivalent) 45-3
Development of design, coding, debugging, and documentation using structured programming for engineering problem solution. Computer problem solving heuristics, algorithm development using top-down design and good programming style. Laboratory work in solution of engineering problems using the PASCAL language. Offered each semester.

CS 132 — Computer Science II
(Prerequisite CS 131 or equivalent) 45-3
Disciplined development in software design through the use of the scientific programming language FORTRAN. Principles and applications of FORTRAN for solution of numerical, mathematical, and engineering problems. Comprehensive student exercises. Offered each semester.

CS 133 — Intro to Software Design with C
(Prerequisite CS 131 or CS 132) 45-3
Application of data structures and Algorithms using the C language Emphasis is placed on the design, implementation, and evaluation of modular programs employing algorithms executed in C. Offered in the Spring Semesters.

CS 322 — Computer Architecture I
(Prerequisite EE 345) 45-3
Instruction sets and formats, addressing techniques, memory organization and their effect on machine organization Utilization of architecture fundamentals at the microprogramming machine language and operating- system levels. Processor and communication organization and mainframe environments.

CS 331 — Operating Systems
(Prerequisite CS 323) 45-3
Systematic top-down approach to operating systems concepts and features for applications programming Compilers, job control or command languages, access methods, linkage editors and loaders. Hardware/software interface and impact of machine architecture on its operating systems' design

RM 101 — Introduction to College Algebra 90-6
Numbers and number systems Operations on polynomials Factoring Algebraic fractions Radicals and exponents. Equations. Inequalities. Slopes Quadratic equations. Complex numbers.

RM 102 — College Algebra
(Prerequisite RM 101) 90-6
Functions and graphs. Polynomial, rational and logarithmic functions. Conic sections. Systems of equations and inequalities. Matrices. Determinants. Cramer's Rule. Linear programming. Zeros of polynomials. Partial fractions. Binomial Theorem. Sequences. Probability.

RM 103 — Trigonometry
(Prerequisite RM 102) 45-3
Trigonometric functions and their graphs. Angles and the unit circle. Fundamental, sum and difference identities. Right-triangle applications. Oblique triangles. Laws of sines and cosines. Vectors. Complex Numbers. DeMoivre's Theorem. Polar form.

MA 25 — Calculus I
(Prerequisite RM 103) 45-3
Introduction to calculus and analytic geometry. Topics include derivatives, the chain rule, implicit functions, continuity, maxima and minima, and derivatives of trigonometric functions. Indefinite and definite integrals.

MA 26 — Calculus II
(Prerequisite MA 25) 45-3
Continuation of Calculus 25. Topic include the study of various transcendental and nonlinear functions and their derivatives. Introduction to integral calculus, integration of various functions and applications.

MA 227 — Calculus III
(Prerequisite MA 26) 45-3
Culmination of the Calculus sequence. Topics include hyperbolic functions, solid analytic geometry, partial derivatives, multiple integration, infinite series and matrices.

MA 321 — Differential Equations
(Prerequisite MA 227) 45-3
Introduction to the solution of ordinary differential equations which describe physical phenomena. Definition and solution of differential equations of first order and applications; higher order differential equations, solution and applications; operator methods and solution to system of linear differential equations; solutions of series expansion.

BE 341 — Physics — Mechanics
(Prerequisite MA 26) 45-3
Resolution and combination of forces. Newton's laws of motion, accelerated linear and angular motion, rotation, energy, work, power and friction; momentum: Hook's Law; simple harmonic motion. Laboratory is included.

BE 342 — Physics — Heat, Light, Sound
(Prerequisite BE 341) 45-3
Temperature and heat: measurement thermal balances, heat transfer, thermal properties (solids, liquids, and gases): waves: sound production, transmission interference and resonance: light reflection, refraction, lens and mirrors Laboratory included.

BE 343 — Physics — Electricity
(Prerequisites MA 227 & BE 342) 45-3
Basic elements of electricity and magnetism; units of measurements; Ohm's Law; Kirchoff's Law: induced EMF; inductance, capacitance; AC series circuits Laboratory included.

BE 346 — Physics — Modern Physics
(Prerequisite BE 343) 45-3
Electromagnetic waves; light interference and diffraction; Plank's Constant, photoelectric effect, Compton effect; particle/wave duality; uncertainty principle; Bohr Atom, quantum mechanics: semi conductors, nuclear structure, radioactivity; subatomic particles.

EN 11 — English I 45-3
Introduction to literature, with emphasis on the essay and poetry. Development of language skills through vocabulary growth, grammar study, and oral communication. Particular attention to theme writing and practice in the techniques of clean exposition.

EN 12 — English II
(Prerequisite EN 11) 45-3
More intensive study of literature, with emphasis on short fiction, drama and original poetry. Vocabulary growth and instruction in techniques of oral communication. Seven to eight essays will be required in addition to a term paper of a critical essay using MLA library form.

EC 12 — Economics
(Prerequisite EN 11) 45-3
A study of macro-economics with emphasis on fundamental concepts and principles used in the analysis of market processes, business organization and national income; detailed treatment of fluctuations in national income and connected problems; effects of taxes and spending in the public sector; theory of economic growth, problems in underdeveloped countries.

HI 30 — The Foundations of Modernization in the West 45-3
Under the impetus of the Renaissance and Reformation, the Western world began the process of modernization by re-examining its concept of society, its political, religious and economic institutions, and the individual's relationship to them. The rise of nation-states and imperial rivalries opened European contact with the rest of the globe. The Scientific Revolution and the Enlightenment accelerted the intellectual search for truth which found political expression in revolutions in Great Britian, the United States and France.

HI 232 — American History I 45-3
This course is a survey of the major political, cultural and diplomatic trends from the discovery of the New World to the Reconstruction Period (1876). Major topics would include the American Revolution, the Federalist Period, Jacksonian Democracy, and the Civil War.

HI 238 — American History II 45-3
This course is a continuation of American History 417 with the same basic goals. Major topics would include: Industrial America, the Road to Imperialism, World War 1, the Twenties, Depression and New Deal, World War II, the Cold War.

HI 239 — Twentieth Century America 45-3
This course in American History is designed for the student who wishes to broaden his knowledge of recent events. It will begin with a review of the first World War and continue to the present day. Emphasis will be placed on concepts drawn from politics, sociology, music and foreign affairs.

FA 40 — Art History I 45-3
A survey of Art with attention given to the interaction between Art and its cultural environment, socioeconomic and technological. Emphasis will be given to the three branches of Art — architecture, sculpture and painting. The time period to be covered will be from "the beginning" approximately 22,000 B C to the end of the Gothic approximately 1400 A D.

PY 101 — Psychology I
(Prerequisite EN 11) 45-3
A study of the physiological basis of perception and behavior, followed by an account of experimental findings on maturation, motivation, learning, individual differences, and group processes affecting the formation of role-concepts and attitudes; the role of emotions, kinds of reactions to frustration, neurotic and psychotic; major approaches to psychotherapy.

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1994	Robert A. Fisch
1995	John Porter

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1. Bellarmine Hall
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9. Basketball Courts
10. Playing Field
11. Intramural Field
12. Varsity Field
13. Baseball Field
14. Alumni Field
15. Dolan Campus
    - A. John C. Dolan Hall
    - B. David J. Dolan House
    - C. Thomas F. Dolan Commons
16. Student Town House Complex
17. McAuliffe Hall
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19. The Levee
20. Xavier Hall
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41. Maintenance
42. Regina A. Quick Center for the Arts
43. Hopkins Pond
44. Egan Chapel of St. Ignatius Loyola and Pedro Arrupe, S.J. Campus Ministry Center

DIRECTIONS – To reach Fairfield University:

- From New York via Connecticut Turnpike (I-95). Take Exit 22. Turn left onto Round Hill Road.
- From New Haven via Connecticut Turnpike (I-95). Take Exit 22. Turn right onto North Benson Road (Rt. 135).
- From New York or New Haven via Merritt Parkway (Rt. 15). Take Exit 44, right onto Black Rock Turnpike; proceed 2 miles to Stillson Road (Rt. 135) and turn right. Bear left onto North Benson Road to the entrance.

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